

FINDING OF NO SIGNIFICANT IMPACT *FOR*

TEST AREAS B-71 AND B-82 RANGE ENVIRONMENTAL ASSESSMENT EGLIN AIR FORCE BASE, FLORIDA RCS 99-148 Revision 1, 2010

This finding, and the analysis upon which it is based, was prepared pursuant to the President's Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA) and its implementing regulations as promulgated at 40 Code of Federal Regulations (CFR) Part 1500 (40 CFR 1500–1508) plus:

- U.S. Air Force *Environmental Impact Analysis Process* (EIAP) as promulgated at 32 CFR Part 989.

The Department of the Air Force has conducted a Range Environmental Assessment (REA) of the potential environmental consequences associated with testing and training activities at Test Areas (TAs) B-71 and B-82 on Eglin Air Force Base (AFB), Florida. That October 2010 REA is hereby incorporated by reference into this finding.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Proposed Action

The Proposed Action is to establish a new authorized level of activity for TAs B-71 and B-82 that is based on an anticipated maximum usage. Demonstrating that the individual and cumulative effects of this usage level do not have significant environmental impact is the method for establishing the maximum threshold baseline, which is being identified as the Range EIAP Baseline. The environmental analysis is accomplished by evaluating the effect that the military mission activities and expendables have on Eglin AFB's natural, physical, and cultural environment.

The No Action Alternative and Alternative 1 are not expected to be sufficient to account for the expected growth of testing and training activities at Eglin AFB over the next 10 years. Therefore, Alternative 2 was selected as the Preferred Alternative to adequately cover the environmental analysis needed to support potential increased testing and training requirements as they occur.

No Action Alternative

This alternative is defined as authorizing the level of activity approved in the 2003 TAs B-71 and B-82 Programmatic Environmental Assessment, which authorized the following:

- The baseline level of mission activities as captured during fiscal years (FYs) 1995, 1996, and 1997, plus historical submunitions testing
- An increase of air-to-surface (A/S) missions to 2,400 percent of baseline levels (i.e., from less than one mission per year to two missions per month)

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE OCT 2010		2. REPORT TYPE		3. DATES COVERED 00-00-2010 to 00-00-2010	
4. TITLE AND SUBTITLE Test Areas B-71 and B-82 Range Environmental Assessment, Revision 1				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Science Applications International Corporation (SAIC),1140 North Eglin Parkway,Shalimar,FL,32579				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 165	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

- An increase of static ground testing to 900 percent (i.e., from about four missions per year to 36 missions per year) and surface-to-surface (S/S) testing to 300 percent of average baseline levels (i.e., from about 25 missions per year to 75 missions per year)

Alternative 1

Alternative 1 would authorize the current level of activity plus foreseeable future activities. No new types of activities, new user groups, or new kinds of expendables have been identified for the foreseeable future at this time. The current level of activity is defined as the maximum annual expenditure for each type of expendable from FY1998 through FY2008; this approach accounts for periods of low or no activity of a certain mission. A/S testing and static ground testing constitute the majority of missions on TA B-71 and TA B-82, but S/S testing, ground training, and other testing and training missions also occur. This alternative would be implemented using management actions identified in the REA.

Alternative 2

This alternative is defined as authorizing the level of activity as described under Alternative 1, plus a 300-percent increase in mission activity, including management actions identified in the REA. A 300-percent increase was chosen as a likely maximum surge increase in military testing and training during a national defense contingency.

Preferred Alternative

The Preferred Alternative is Alternative 2, which allows a 300-percent increase in TAs B-71 and B-82 operations over the current level of activity plus foreseeable future activities. Implementation of management actions will allow a surge in test and training activities while minimizing impacts to environmental and natural resources.

ENVIRONMENTAL IMPACTS

Analysis was conducted to determine the potential impacts to the human and natural environment resulting from the No Action Alternative and the Preferred Alternative. No significant impacts to resources have been identified, provided the management actions detailed in Section 2.5 of the REA would be implemented. A detailed discussion of issues analyzed and management strategies used to reduce potential impacts is given in Chapter 4 of the REA.

PUBLIC NOTICE

A public notice was published in the *Northwest Florida Daily News* on 13 September 2010 inviting the public to review and comment on the REA and Draft Finding of No Significant Impact. The public comment period closed on 27 September 2010, and no public comments were received. State agency comments were received and have been addressed in Appendix F, *Public Involvement*, of the Final REA.

FINDING OF NO SIGNIFICANT IMPACT

Based on my review of the facts and the environmental analysis contained in the attached REA, and as summarized above, I find the proposed decision of the Air Force to implement the Preferred Alternative will not have a significant impact on the human or natural environment; therefore, an environmental impact statement is not required. This analysis fulfills the requirements of the NEPA, the President's CEQ, and 32 CFR Part 989.



DAVID H. MAHARREY, JR., Colonel, USAF
Commander, 96th Civil Engineer Group

3 Nov 10

Date

**EGLIN AIR FORCE BASE
Florida**

TEST AREAS B-71 AND B-82

**RANGE ENVIRONMENTAL
ASSESSMENT, REVISION 1**

FINAL



OCTOBER 2010

TEST AREAS B-71 AND B-82

RANGE ENVIRONMENTAL

ASSESSMENT, REVISION 1

FINAL

Submitted to:

96 CEG/CEVSP
Environmental Analysis Section
Eglin Air Force Base, Florida

OCTOBER 2010



PRINTED ON RECYCLED PAPER

TABLE OF CONTENTS

	<u>Page</u>
List of Tables	iii
List of Figures	iii
List of Acronyms, Abbreviations, and Symbols	iv
1. PURPOSE AND NEED FOR ACTION	1-1
1.1 Introduction	1-1
1.2 Proposed Action	1-1
1.3 Scope of the Proposed Action	1-4
1.4 Decision Description	1-5
1.5 Issues	1-5
1.5.1 Resource Areas Eliminated from Detailed Analysis	1-6
1.5.2 Resource Areas Identified for Detailed Analysis	1-6
1.6 Federal Permits, Licenses, and Entitlements	1-10
2. ALTERNATIVES	2-1
2.1 Introduction	2-1
2.2 Alternatives Considered	2-1
2.2.1 No Action Alternative	2-1
2.2.2 Alternative 1: Authorize Current Level of Activity Plus Foreseeable Future Activities	2-3
2.2.3 Alternative 2: Alternative 1 With a 300-Percent Mission Surge (Preferred Alternative)	2-3
2.3 Comparison of Alternatives	2-4
2.4 Preferred Alternative	2-8
2.5 Management Requirements	2-8
3. AFFECTED ENVIRONMENT	3-1
3.1 Chemical Materials	3-1
3.1.1 Hazardous Materials	3-1
3.1.2 Debris	3-2
3.1.3 Legacy Debris Pit Sites	3-3
3.2 Soils	3-5
3.2.1 Soil Type	3-5
3.2.2 Erosion	3-5
3.3 Water Resources	3-7
3.3.1 Groundwater	3-7
3.3.2 Surface Water	3-7
3.3.3 Wetlands	3-9
3.3.4 Floodplains	3-10
3.3.5 Coastal Zone	3-11
3.4 Biological Resources	3-11
3.4.1 Ecological Associations	3-12
3.4.2 Sensitive Habitats	3-12
3.4.3 Sensitive Species	3-12
3.4.4 Invasive Non-native Species Management	3-19
3.5 Cultural Resources	3-19
3.5.1 Region of Influence and Existing Conditions	3-20
3.6 Air Quality	3-20
3.6.1 Definition	3-20
3.6.2 Region of Influence and Existing Conditions	3-21
3.7 Noise	3-22
3.7.1 Definition	3-22
3.7.2 Effects of Noise	3-24
3.7.3 Existing Noise Environment	3-26

TABLE OF CONTENTS CONT'D

	<u>Page</u>
3.8 Safety.....	3-26
3.8.1 Regulatory and Management Overview	3-26
3.8.2 Unexploded Ordnance	3-28
3.8.3 Restricted Access.....	3-28
3.9 Land Use	3-30
3.10 Socioeconomic Resources	3-31
3.10.1 Environmental Justice.....	3-31
3.10.2 Risks to Children	3-33
3.10.3 Noise Complaints	3-33
 4. ENVIRONMENTAL CONSEQUENCES	 4-1
4.1 Chemical Materials.....	4-1
4.1.1 No Action Alternative	4-1
4.1.2 Alternative 1	4-3
4.1.3 Alternative 2	4-4
4.2 Soils.....	4-5
4.2.1 No Action Alternative	4-6
4.2.2 Alternative 1	4-10
4.2.3 Alternative 2	4-12
4.3 Water Resources.....	4-12
4.3.1 No Action Alternative	4-13
4.3.2 Alternative 1	4-15
4.3.3 Alternative 2	4-16
4.4 Biological Resources.....	4-17
4.4.1 No Action Alternative	4-17
4.4.2 Alternative 1	4-20
4.4.3 Alternative 2	4-20
4.5 Cultural Resources	4-21
4.5.1 No Action Alternative	4-21
4.5.2 Alternative 1	4-22
4.5.3 Alternative 2	4-22
4.6 Air Quality.....	4-23
4.6.1 No Action Alternative	4-23
4.6.2 Alternative 1	4-24
4.6.3 Alternative 2	4-24
4.7 Noise.....	4-25
4.7.1 No Action Alternative	4-26
4.7.2 Alternative 1	4-26
4.7.3 Alternative 2	4-27
4.8 Safety.....	4-27
4.8.1 No Action Alternative	4-27
4.8.2 Alternative 1	4-29
4.8.3 Alternative 2	4-30
4.9 Land Use	4-30
4.9.1 No Action Alternative	4-30
4.9.2 Alternative 1	4-31
4.9.3 Alternative 2	4-31
4.10 Socioeconomic Resources	4-31
4.10.1 No Action Alternative	4-31
4.10.2 Alternative 1	4-32
4.10.3 Alternative 2	4-32
 5. LIST OF PREPARERS	 5-1

TABLE OF CONTENTS CONT'D

	<u>Page</u>
6. REFERENCES.....	6-1
APPENDIX A Relevant Laws, Regulations, and Policies	A-1
APPENDIX B Test Site Descriptions.....	B-1
APPENDIX C Air Quality Supplemental Information	C-1
APPENDIX D Biological Resources	D-1
APPENDIX E Coastal Zone Management Act (CZMA) Determination	E-1
APPENDIX F Public Involvement.....	F-1

LIST OF TABLES

	<u>Page</u>
Table 2-1. Maximum Annual Expendables for Test Areas B-71 and B-82 Under the No Action Alternative, Alternative 1, and Alternative 2	2-2
Table 2-2. Summary of Potential Impacts Under All Alternatives	2-4
Table 3-1. Legacy Debris Pit Sites Located Within Test Area B-70	3-3
Table 3-2. Typical Species Found Within the Sandhills, Wetland/Riparian, Flatwoods, and Open Grassland/Shrubland Ecological Associations	3-14
Table 3-3. Sensitive Species Found on or Near Test Areas B-71 and Test Area B-82.....	3-16
Table 3-4. National Ambient Air Quality Standards (NAAQS).....	3-21
Table 3-5. Baseline Emissions Inventory for Okaloosa County	3-22
Table 3-6. Relationship Between Noise Level and Percent of Population Highly Annoyed.....	3-24
Table 3-7. Total Number of Recreational Permits Sold at Eglin AFB, FY2009	3-30
Table 3-8. 2008 Noise Complainant Data per City.....	3-35
Table 3-9. Eglin AFB 2008 Noise Complaint Data by City and Type of Complaint	3-35
Table 4-1. Munition-Related Residue Under No Action Alternative	4-3
Table 4-2. Munition-Related Residue Under Alternative 1	4-4
Table 4-3. Munition-Related Residue Under Alternative 2	4-5
Table 4-4. MK-82 and MK-84 Bomb Explosive Byproduct Soil Concentrations.....	4-7
Table 4-5. Propellant By-product Soil Concentrations.....	4-8
Table 4-6. Munition Emissions for the No Action Alternative Compared to Okaloosa County	4-23
Table 4-7. Munition Emissions for the No Action Alternative Compared to the NAAQS.....	4-23
Table 4-8. Munition Emissions for Alternative 1 Compared to Okaloosa County	4-24
Table 4-9. Munition Emissions for Alternative 1 Compared to the NAAQS	4-24
Table 4-10. Munition Emissions for Alternative 2 Compared to Okaloosa County	4-25
Table 4-11. Munition Emissions for Alternative 2 Compared to the NAAQS	4-25

LIST OF FIGURES

	<u>Page</u>
Figure 1-1. Land and Water Ranges of the Eglin Military Complex	1-2
Figure 1-2. Test Areas B-71 and B-82 Region of Influence	1-7
Figure 3-1. Legacy Debris Pits Located Near Test Area B-71	3-4
Figure 3-2. Soil Types Within Test Areas B-71 and B-82.....	3-6
Figure 3-3. Water Resources Located on Test Areas B-71 and B-82.....	3-8
Figure 3-4. Ecological Associations Found on or Near Test Areas B-71 and B-82	3-13
Figure 3-5. Sensitive Habitats Found on or Near Test Areas B-71 and B-82.....	3-15
Figure 3-6. Sensitive Species Found on or Near Test Areas B-71 and B-82.....	3-17
Figure 3-7. Sensitive Plants Found on or Near Test Areas B-71 B-82	3-18
Figure 3-8. Restricted Access, Land Use, and Recreation at and around Test Areas B-71 and B-82.....	3-29
Figure 3-9. Communities With High Minority and Low-Income Populations	3-32
Figure 3-10. Communities with a High Percentage of Children Under 18.....	3-34

LIST OF ACRONYMS, ABBREVIATIONS, AND SYMBOLS

46 TW	46th Test Wing
96 CEG/CEVSH	96th Civil Engineer Group/Cultural Resources Section
96 CEG/CEVSN	96th Civil Engineer Group/Natural Resources Section
96 CEG/CEVSP	96th Civil Engineer Group/Environmental Analysis Section
96 CES/CED	96th Civil Engineer Squadron Explosive Ordnance Disposal Flight
AAC	Air Armament Center
AFB	Air Force Base
AFI	Air Force Instruction
AGM	Air-to-Ground
A/S	Air-to-Surface
BA	Biological Assessment
BMP	Best Management Practice
CAA	Clean Air Act
CATEX	Categorical Exclusion
CBA	Closed Box Assessment
CDNL	C-weighted Day-Night Sound Level
CFR	Code of Federal Regulations
CHABA	Committee on Hearing, Bioacoustics, and Biomechanics
CRM	Cultural Resources Management
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	Decibels
dBA	A-weighted Decibels
dBBC	C-weighted Decibels
dBp	Actual Noise Level
DNL	Day-Night Average Sound Level
DoD	Department of Defense
EBD	Environmental Baseline Document
EO	Executive Order
EOD	Explosive Ordnance Disposal
EPCRA	Emergency Planning and Community Right-to-Know Act
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FAC	Florida Administrative Code
FCO	Fast Cook-off
FDEP	Florida Department of Environmental Protection
FHC	Final Hazard Classification
FWC	Florida Fish and Wildlife Conservation Commission
FY	Fiscal Year
GMD	Ground-based Midcourse Defense
Hz	Hertz
HQNC	High Quality Natural Community
IM	Insensitive Munition
INS	Invasive Non-native Species
IWR	Impaired Waters Rule
kg	Kilogram
LDP	Legacy Debris Pit
µg/m³	Micrograms per Cubic Meter
m³	Cubic Meters
mg	Milligram
mm	Millimeter
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NEI	National Emissions Inventory

LIST OF ACRONYMS, ABBREVIATIONS, AND SYMBOLS, CONT'D

NEPA	National Environmental Policy Act
NEW	Net Explosive Weight
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_x	Nitrogen Oxides
NRHP	National Register of Historic Places
NRS	Natural Resources Section
ORM	Operational Risk Management
PEA	Programmatic Environmental Assessment
PK₁₅(met)	Peak Noise Exceeded by 15 Percent of Firing Events
ppm	Parts per Million
RCRA	Resource Conservation and Recovery Act
RCW	Red-cockaded Woodpecker
REA	Range Environmental Assessment
ROI	Region of Influence
SIP	State Implementation Plan
SO₂	Sulfur Dioxide
S/S	Surface-to-Surface
SDZ	Surface Danger Zone
SEL	Sound Exposure Level
SHPO	State Historic Preservation Office
SPCC	Spill Prevention, Control, and Countermeasures
SPL	Sound Pressure Levels
TA	Test Area
TRI	Toxic Release Inventory
TRI-DDS	Toxic Release Inventory–Data Delivery System
USACE	U.S. Army Corps of Engineers
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound

This page is intentionally blank.

1. PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

The Eglin Military Complex, located in the northwest Florida panhandle (Figure 1-1), is one of 19 component installations categorized as a Department of Defense (DoD) Major Range Test Facility Base. Eglin Air Force Base (AFB) is situated among three counties: Santa Rosa, Okaloosa, and Walton. Eglin AFB's primary function is to support research, development, test, and evaluation of conventional weapons and electronic systems. Eglin AFB also provides support for individual and joint training of operational units. The Eglin Military Complex currently comprises the following four components (U.S. Air Force, 2001), which do not include the cantonment or main base areas:

- (1) Test Areas/Sites
- (2) Interstitial Areas (areas beyond and between the test areas)
- (3) The Eglin Gulf Test Range
- (4) Airspace (overland and water)

The U.S. Air Force Air Armament Center (AAC) has responsibility for the Eglin Military Complex and for all its users, which include DoD, other government agencies, foreign countries, and private companies. For Range operations, the AAC provides environmental analyses and necessary National Environmental Policy Act (NEPA) documentation to ensure compliance with U.S. Air Force policy and applicable federal, state, and local environmental laws and regulations.

The AAC includes two wings and four directorates that collectively operate, manage, and support all activities on the Eglin Military Complex. The AAC accomplishes its Range operations through the 46th Test Wing (46 TW) with support from the 96th Air Base Wing. The 46 TW commander is responsible for day-to-day scheduling, executing, and maintaining of this national asset. Test Areas (TAs) B-71 and B-82 make up a portion of the Eglin Military Complex and support a variety of test and training missions. The continued DoD utilization of the Eglin Military Complex requires flexible and unencumbered access to land ranges and airspace, which support all of Eglin AFB's operations.

1.2 PROPOSED ACTION

The **Proposed Action** is for the 46 TW commander to establish a new authorized level of activity for TAs B-71 and B-82 that is based on an anticipated maximum usage. Demonstrating that the individual and cumulative effects of this usage level do not have significant environmental impact is the method for establishing the maximum threshold baseline, which is being identified as the *Range Environmental Impact Analysis Process Baseline*. The environmental analysis is accomplished by evaluating the effect that the military mission activities and expendables have on Eglin AFB's natural, physical, and cultural environment.



Figure 1-1. Land and Water Ranges of the Eglin Military Complex

The military mission has been broadly identified as the effector of environmental impacts and Eglin AFB's environment has been identified as the receptor. Evaluation and quantification of this effector/receptor relationship is the scientific basis for the environmental analysis performed in this report.

The **purpose and need of the Proposed Action** is twofold as described in the following:

- (1) Purpose: to quickly and efficiently process new programs requesting access to TAs B-71 and B-82 during both routine and crisis situations.
 - Need: to provide military users a quick response to priority needs during war or other significant military involvement, as well as to maintain the current approval process for routine uses.
- (2) Purpose: to update the NEPA analysis by re-evaluating the mission activities and by performing a cumulative environmental analysis of all mission activities.
 - Need: the need associated with this item is multifaceted and is described below.

Eglin AFB previously performed environmental analysis on mission activities on TAs B-71 and B-82 in the *2003 Test Areas B-71 and B-82 Final Programmatic Environmental Assessment* (PEA) (U.S. Air Force, 2003). Some of Eglin AFB's mission activities have changed since the original environmental analysis was done, requiring new environmental analysis to be performed. Currently, when approval for a new mission is requested, it may be categorically excluded from additional environmental analysis if it is similar in action to a mission that has been previously assessed and the assessment resulted in a finding of no significant environmental impact. The categorical exclusion (CATEX) designation is in accordance with NEPA and Air Force regulations (Council on Environmental Quality 32 Code of Federal Regulations [CFR] 989.13 and Air Force Instruction [AFI] 32-7061).

Since the time that some of these ongoing mission activities were originally assessed, and also since some of the mission activities that are used for CATEX purposes were assessed, changes have occurred at Eglin AFB that could affect environmental analysis. These changes, outlined below, create a need to re-evaluate the NEPA analysis individually and cumulatively.

- Additional species have been given federal and state protected status.
- Species that were not previously known to exist at Eglin AFB have been discovered.
- Additional cultural resources have been discovered and documented.
- The population of communities along Eglin AFB's borders has increased.
- Air Force regulations have changed.
- Military missions and weapons systems have evolved.

The analysis performed in this report allows for a cumulative look at the impact on TAs B-71 and B-82 receptors from all mission activities. By implementing an authorized level of activity, Range management will be streamlined and cumulative environmental impacts will be more fully considered.

1.3 SCOPE OF THE PROPOSED ACTION

The region of influence (ROI) for this analysis is TAs B-71 and B-82. These test areas are evaluated together based on similarities in mission activity, affected environment, and proximity, and to efficiently use environmental analysis funds.

TAs B-71 and B-82 are located on the western half of the Eglin Range Complex in Santa Rosa County, approximately 8 miles northeast of Eglin Main, as shown in Figure 1-2. Test Area B-71 is a major test area most commonly used for static ground tests and surf zone countermeasures testing. Previously, TA B-71 was primarily used to test submunitions, incendiary and flame weapons. TA B-82 is a lesser test area located about one-half mile northwest of B-71 and is most commonly used for testing submunitions, mine fields, and munitions under static conditions, as well as a drop zone for paratroops and equipment.

The mission activities occurring on TAs B-71 and B-82 are categorized by different types of testing and training operations. The air operations that occur in the airspace (Restricted Area R-2915A) overlying TAs B-71 and B-82 are not included as part of the scope for this Range Environmental Assessment (REA); these air operations are analyzed cumulatively in the Overland Air Operations REA. However, any expendables released during air operations, as they impact TAs B-71 and B-82 and the vicinity, are included in this REA.

TA B-71 and TA B-82 support a variety of testing and training activities that include:

- **Air-to-Surface (A/S) Testing.** A/S testing missions may involve the use of a new weapon, new fuse, upgraded guidance or sensor system, or a new mix of weapons not currently authorized for carriage. Some A/S tests may evaluate new bombing computer software without expending an actual weapon, and some involve releasing or firing a bomb or missile from an aircraft to impact somewhere on the test area. Both TA B-71 and TA B-82 can accommodate A/S testing, though TA B-71 is not currently used for this type of activity since damage to the asphalt grid and motion table could result.
- **Static Ground Testing.** Static ground testing encompasses a large variety of testing. These tests include Insensitive Munition (IM) testing and Final Hazard Classification (FHC) Testing. IM testing currently consists of seven tests: bullet impact, fragment impact, sympathetic detonation, fast cook-off, slow cook-off, shaped charge jet impact, and spall impact and are accomplished in accordance with Military Standard 2105B. The purpose of the seven IM tests is to classify the munition in question in terms of its sensitivity to external stimuli. FHC is the process by which specific initiating influences are applied to munitions to determine the reactions of the munitions. These reactions are used to classify hazardous materials into the appropriate DoD Hazard Class/Division as well as to determine storage compatibility for the munitions. The FHC test series is currently comprised of three test procedures performed on all-up-rounds; the single package test, the confined stack test, and the external fire stack (bonfire) test. The purpose of these FHC tests is to classify the test article as per DoD Hazard Classification Guidelines for storage and transportation considerations. Other tests performed at the test areas include warhead damage assessment, arena testing, and gun/ammunition/gun mount testing. These tests usually require remote detonation and extensive instrumentation with camera and video coverage. Both test areas can accommodate these activities.

- **Surface-to-Surface (S/S) Testing.** S/S testing is performed on TA B-71; TA B-82 is not used for this type of test. There are two types of S/S testing: gun testing and shallow water mine countermeasures testing. During a gun test, the performance of a gun or ammunition over an extended distance is evaluated. Shallow-water mine countermeasures testing involve a beach mine-clearing system deployed by rockets. The six degrees of motion platform on TA B-71 helps to simulate the rolling action of a vessel on the sea to enhance this testing.
- **Ground Training.** Training missions or activities are designed to teach, maintain, or increase the operator's proficiency to perform these activities. Training is divided into categories, similar to the testing categories, to describe the mission activities. Under these categories, the activity is described; the major trainees, typical aircraft, and numbers of missions are listed; and the types and numbers of expendables associated with the missions are identified. Security forces conducted small arms training on TA B-71 during the updated baseline years, expending several thousand rounds of 5.56-millimeter (mm), 7.62-mm, and 9-mm caliber rounds.

Missions on TAs B-71 and B-82 are under the purview of the 46 TW. A complete description of all current testing and training activities and user groups are described in the *Test Areas B-71 and B-82 Final Environmental Baseline Document* (EBD), Chapter 2, Mission Summary (U.S. Air Force, 2007). Appendix B, Test Site Descriptions, provides additional site information on TAs B-71 and B-82.

1.4 DECISION DESCRIPTION

The 46 TW desires to authorize a new level of activity for TAs B-71 and B-82, replacing the current authorized level, which is discussed in Section 2.2. A decision is to be made on the *level* of activity to be authorized, which includes changes in mission types, the combination of missions, and the level of intensity of missions. By authorizing a new level of activity and analyzing the effects of that level of activity, future similar actions may be categorically excluded from further environmental analysis. This will save both time and money in the review of proposed actions and will enable users to access TAs B-71 and B-82 more quickly and efficiently. Authorization of a new level of activity will streamline the environmental process, enhancing Eglin AFB's ability to quickly respond to high priority or crisis requirements.

1.5 ISSUES

Specifically, an issue may be the result of a mission activity or land use activity that may directly or indirectly impact physical, biological, and/or cultural resources. A *direct* impact is a distinguishable, evident link between an action and the potential impact; whereas, an *indirect* impact may occur later in time and/or may result from a direct impact.

Potential environmental impacts of alternative actions on TAs B-71 and B-82 resource areas were identified through preliminary investigations. Resource areas eliminated from further analysis are discussed in Section 1.5.1. Resource areas identified for detailed analysis are

described in Section 1.5.2, with narratives providing a summary of the preliminary screening for potential impacts.

1.5.1 Resource Areas Eliminated from Detailed Analysis

Environmental Restoration Program Sites

No Environmental Restoration Program (ERP) sites or sites subject to land use controls are located within TAs B-71 and B-82; therefore, there are no potential impacts to ERP sites.

1.5.2 Resource Areas Identified for Detailed Analysis

Chemical Materials/Debris

Chemical materials encompass liquid, solid, or gaseous substances that are released into the environment as a result of mission activities; these include organic and inorganic materials that can produce a chemical change or toxicological effect to an environmental receptor. The chemical materials that can accumulate in the environment through repeated use represent the highest potential for environmental impact. At TAs B-71 and B-82, these would include chemical materials and/or residues released from missile expendables, bombs, small arms, chaffs, and flares.

Debris is a byproduct of testing or training and may include items such as spent casings, bomb fragments, and target or structure fragments. Depending on the composition, debris may become a chemical materials issue, or it may have human safety (i.e., unexploded ordnance [UXO]) or aesthetic impacts. Sufficient amounts of debris could be considered habitat alteration depending on the location deposited. Examples of debris on TAs B-71 and B-82 include unexploded submunitions or other ordnance, bomb tailfins, and remnants of defunct target and test structures.

Soils

Soil formation is an ongoing process that is determined by the nature of the parent material and influence of environmental factors such as climate, geology, topography, and vegetation. Soils on TAs B-71 and B-82 belong to the Lakeland Association. The main issue of concern for soils at TAs B-71 and B-82 is erosion and the potential for munition residue to decrease soil quality by introducing new or additional organic and/or inorganic compounds into the soil matrix.

Water Resources

The Proposed Action has the potential to impact water resources within and around TAs B-71 and B-82. The main issue of concern for water resources is that mission byproducts could enter surface or groundwater. Water resource analysis addresses the potential for impacts to surface waters, wetlands, floodplains, and groundwater from sedimentation and/or contamination, by testing and training activities and associated expendables.



Biological Resources

Biological resources may be affected by the Proposed Action. Issues to be examined include potential impacts on wildlife and sensitive species; and habitats from direct physical impact, habitat alteration, and noise. Direct physical impact is the physical harm that can occur to an organism (plant or animal) if it comes into contact with an effector, such as a bomb or shrapnel. Habitat alterations are described as the physical damage or perturbations to terrestrial and aquatic habitats. Habitat alteration can occur as a result of fire started by flares or munitions, or from soil disturbance associated with munitions. Noise produced by testing and training activities and associated expendables may stress some wildlife species or cause hearing loss or damage.

Analysis focuses on identifying sensitive species and habitats within TAs B-71 and B-82, analyzing the potential for impacts, and establishing management actions for the avoidance and/or minimization of identified potential impacts.

Cultural Resources

In addition to National Register of Historic Places (NRHP) eligible archaeological resources, several areas on TAs B-71 and B-82 have a high potential to contain cultural resources. Physical disturbance and/or the destruction of cultural resources could occur from mission activities. Analysis will focus on cultural site locations and the likelihood of site disturbance and/or destruction. Until the identification and evaluation of resources are completed and as per the National Historic Preservation Act (NHPA) and AFI 32-7065 for this area, the danger of direct physical impact to unknown cultural resources is always a possibility. Resources and unsurveyed areas must be avoided or impacts mitigated if ground disturbing activities are planned. As per AFI 32-7065, cultural resource site locations on Eglin AFB will not be presented in this document to prevent public disclosure of sensitive resources. If ground disturbing activities are planned, the 96th Civil Engineer Group/Cultural Resources Section (96 CEG/CEVSH) would be contacted prior to project initiation.

Air Quality

Testing and training operations would release emissions from munitions use. Analysis addresses the expected levels of emissions and compares these levels with what is currently permitted from all Eglin AFB sources and county emissions.

Noise

Noise is defined as the unwanted sound produced by mission activity and its associated expendables. Noise may directly inconvenience and/or stress humans and some wildlife species, and may cause hearing loss or damage. Analysis uses two metrics, or measurements, to assess potential noise impacts resulting from the detonation of high explosives associated with TAs B-71 and B-82 missions. The first is sound pressure levels (SPL), and the second involves considerations of time-averaged noise levels. The SPL metric is the metric used for the direct assessment of noise impacts resulting from the detonation of high explosives. The time-averaged

noise level that is considered is the day-night average noise level associated with C-weighted noise (U.S. Air Force, 2007)

Noise is a potential issue for TAs B-71 and B-82 missions involving A/S testing and static ground testing of live munition. Examples of noise impacts include exposure of sensitive species to potentially harmful levels of noise (U.S. Air Force, 2003).

Safety/Restricted Access

Safety involves hazards to military personnel and the public resulting from mission activities. Restricted access is typically the result of safety considerations. Restricted access applies to the restriction of public access, described in terms of the availability of Eglin resources (such as test areas, interstitial/recreational areas, or public roads) to the general public. Receptors potentially impacted include military personnel and the public desiring to use these areas. Guidance for restricted access is utilized to coordinate public and military use of airspace, water space (e.g., the Gulf of Mexico), and land areas within the Eglin ROI. Although TAs B-71 and B-82 are closed to all forms of public access, restricted access issues may result due to brief closures of recreational areas that fall within the safety footprint of some missions.

Additionally, UXO poses a potential impact to safety. Test areas with known UXO require Explosive Ordnance Disposal (EOD) escort, and regulations regarding UXO should remain in place and continue to be followed. Potential UXO issues are identified and associated safety regulations are outlined.

Land Use and Recreation

Land use generally refers to human management and use of land. Specific uses of land typically include residential, commercial, industrial, agricultural, military, and recreational. Land use also includes areas set aside for preservation or protection of natural resources, wildlife habitat, vegetation, or unique features. TAs B-71 and B-82 are solely utilized for military training and testing activities. No change to current land use is expected; however, nearby land use and recreational activities could potentially be impacted by temporary access restrictions during certain testing and training activities.

Socioeconomics

Potential socioeconomic impacts include those that would expose low-income and minority populations to disproportionate negative impacts, or pose special risks to children (under 18 years old) due to noise, pollutant transport, and other conditions in the TAs B-71 and B-82 ROI. The socioeconomic receptors include nearby communities and property that are impacted by the noise from Eglin AFB ordnance. Analysis focuses on the exposure of these communities to anticipated environmental effects and identifying whether potential concern areas were disproportionate to other communities in the region.

1.6 FEDERAL PERMITS, LICENSES, AND ENTITLEMENTS

Components of this action would take place within or otherwise may affect the jurisdictional concerns of the Florida Department of Environmental Protection (FDEP) and, therefore, will require a consistency determination with respect to Florida's Coastal Zone Management Plan under the Federal Coastal Zone Management Act (CZMA) (Appendix E).

2. ALTERNATIVES

2.1 INTRODUCTION

This section introduces the alternatives that will be evaluated for potential environmental impacts in this REA for TAs B-71 and B-82. The proposed alternatives, which are analyzed in this document, are:

- No Action Alternative: Baseline, as defined by the Preferred Alternative in the 2003 TAs B-71 and B-82 PEA (U.S. Air Force, 2003).
- Alternative 1: Authorize current level of activity plus foreseeable future activities.
- Alternative 2 (Preferred Alternative): Alternative 1 with a 300-percent mission surge.

A brief description of each alternative, including the alternative-specific expendables, is provided in the following section.

2.2 ALTERNATIVES CONSIDERED

The alternatives considered for analysis were determined during an interdisciplinary meeting at Eglin AFB, which included, but was not limited to, representatives from the 46 TW Plans Office, the 96th Civil Engineer Group (96 CEG)/Environmental Analysis Section (CEVSP) and Natural Resources Section (96 CEG/CEVSN). The alternatives chosen were a result of discussions on how foreseeable future activities will expand Eglin AFB's testing requirements in the upcoming years. There were no alternatives eliminated from detailed analysis.

2.2.1 No Action Alternative

This alternative is defined as authorizing the level of activity approved in the 2003 TAs B-71 and B-82 PEA (U.S. Air Force, 2003), which authorized the following:

- The baseline level of mission activities as captured during fiscal years (FYs) 1995, 1996, and 1997, plus historical submunition testing
- An increase of A/S missions to 2,400 percent of baseline levels (i.e., from less than 1 mission per year to two missions per month)
- An increase of static ground testing to 900 percent (i.e., from about four missions per year to 36 missions per year) and S/S testing to 300 percent of average baseline levels (i.e., from about 25 missions per year to 75 missions per year)

Table 2-1 shows the level of activity by type of mission expenditure under the No Action Alternative, which is the previously approved level of activity.

Table 2-1. Maximum Annual Expendables for Test Areas B-71 and B-82 Under the No Action Alternative, Alternative 1, and Alternative 2

Expendable Category	Mission Expenditure	No Action Alternative ^a	Alternative 1 ^b	Alternative 2 ^c
Test Area B-71				
Bomb (Inert)		0	73	292
Bomb (Live)		54	40	152
Grenades (Inert)		0	1,015	4,060
Grenades (Live)	Grenade (smoke)	0	220	880
	Grenade (incendiary)	0	36	144
	Grenade (HE)	0	915	3,660
Guns (Inert)	105 mm simulant	0	3	12
	30 mm	0	40	160
Guns (Live)	105 mm	0	197	788
	40 mm	0	224	896
	84 mm HE	288	0	0
	30 mm	0	32	128
Missile (Inert)		0	12	48
Missile (HE)		9	18	72
Rocket (HE)		0	2	8
Other (Inert)	Herbicide (gallons)	0	500	2,000
Other (Live)	Various Submunitions	12	0	0
	BLACK POWDER (LBS)	178,380	0	0
	BLASTING CAP	0	381	1,524
	TNT (LBS)	774	0	0
	IMPULSE CTG	0	63	252
	DETONATOR	0	83	332
	ROCKET MOTOR	191	33	132
	FLARE	0	482	1926
	FUZE	0	281	1,124
	IGNITER	0	8	32
	PROPELLANT	0	206	824
	CHARGE (lbs)	27	418	1,672
	DET CORD (per foot)	0	3,731	14,924
	GALLONS OF DIESEL FUEL	0	15	60
	GALLONS OF JP-8 FUEL ^d	59,200	83,400	166,800
Small Arms (Live)	.50 CAL	0	14	56
	5.56 mm	0	26,272	105,088
	7.62 mm	0	5,864	23,456
	9 mm	0	19,645	78,580
Unknown	RDU	0	6	24
	Unknown	0	31	124
Unknown (Inert)		0	1	4
Mortar (Live)	120mm (smoke)	0	12	48
	80 mm	0	52	208
	66 mm	0	80	320
Test Area B-82				
Bombs (Inert)		96	12	48
Bombs (Live)		240	12	48
Missile (Live)		0	1	4
Other (Live)	Charge (lbs)	0	974	3,896
	DET CORD	0	1,000	4,000

Table 2-1. Maximum Annual Expendables for Test Areas B-71 and B-82 Under the No Action Alternative, Alternative 1, and Alternative 2, Cont'd

Expendable Category	Mission Expenditure	No Action Alternative ^a	Alternative 1 ^b	Alternative 2 ^c
	DETONATOR	0	3	12
	FIRE STARTER FLARES	0	10,294	41,176
	FLARE	0	52	206
	FUZE	0	30	120
Unknown	Various Submunitions	12	2	8
	Unknown	0	23	92

a. Source: U.S. Air Force, 2003

b. Maximum annual quantity from FY1998–FY2008; expendables grouped by similar nomenclature, DODIC, and/or NSN.

c. Alternative 1 plus 300 percent.

d. JP-8 fuel estimate under Alternative 1 is based on the projected number of fast/slow cook-off tests (two large pan and two small pan tests annually) and average amount of fuel used per test; Alternative 2 is based on the maximum supportable number of fast/slow cook-off tests annually (four large pan and four small pan test annually). Source: Jones, 2010.

2.2.2 Alternative 1: Authorize Current Level of Activity Plus Foreseeable Future Activities

Alternative 1 would authorize the current level of activity plus foreseeable future activities. No new types of activities, new user groups, or new kinds of expendables have been identified for the foreseeable future at this time. The current level of activity is defined as the maximum annual expenditure for each type of expendable from FY1998 through FY2008; this approach accounts for periods of low or no activity of a certain mission. Air-to-surface testing and static ground testing constitute the majority of missions on TA B-71 and TA B-82, but S/S testing, ground training, and other testing and training missions also occur. This alternative would be implemented using management actions identified in Chapter 4 and summarized in Section 2.5, *Management Requirements*. Table 2-1 shows the estimated level of activity under Alternative 1.

2.2.3 Alternative 2: Alternative 1 With a 300-Percent Mission Surge (Preferred Alternative)

This alternative is defined as authorizing the level of activity as described under Alternative 1, plus a 300-percent increase in mission activity, including management actions identified in Chapter 4 and summarized in Section 2.5, *Management Requirements*. A 300-percent increase was chosen as a likely maximum surge increase in military testing and training during a national defense contingency. Table 2-1 shows the estimated level of activity under Alternative 2.

This alternative includes authorization of the proposed level of activity and performance of a comprehensive environmental analysis to ensure that TAs B-71 and B-82 can support this level of activity without suffering significant environmental impact. This is the Preferred Alternative because it includes all mission activities that are expected to occur and provides capacity for a test surge. This alternative authorizes an expected maximum level of activity, which allows better responsiveness to the customer while ensuring that cumulative environmental effects do not cause significant impact.

2.3 COMPARISION OF ALTERNATIVES

Potential impacts under each alternative are summarized in Table 2-2.

Table 2-2. Summary of Potential Impacts Under All Alternatives

Resource	No Action	Alternative 1	Alternative 2
Chemical Materials	Three legacy debris pit (LDP) sites are located on the western border of Test Area (TA) B-71 and one on LDP is located on the southern border, but those are located away from target sites and other ground-disturbing activities. Therefore, no impacts to LDP or Environmental Restoration Program (ERP) sites are anticipated under any of the alternatives.		
	Munition fragments and residues would be generated as a result of testing and training missions. Releases to the environment from munitions utilized in proficiency and qualification training require reporting to the U.S. Environmental Protection Agency (USEPA) under the Emergency Planning and Community Right-to-Know Act (EPCRA) Toxic Release Inventory (TRI) program. Eglin Air Force Base (AFB) has developed procedures to comply with TRI reporting requirements and would track ordnance use associated with the proposed alternatives. Although the release of some chemicals would increase from the previously assessed baseline under the No Action Alternative, no new TRI thresholds would be exceeded and adverse effects are not anticipated.	Under Alternative 1, the release of toxic chemicals would increase over the No Action Alternative. However, no new TRI thresholds would be exceeded and adverse impacts to the environment are not anticipated.	Under Alternative 2, ordnance expenditures would increase threefold, and therefore the release of hazardous chemicals would increase. Despite this, no new TRI thresholds would be exceeded and adverse impacts to the environment are not anticipated.
	Three LDP sites are located on the western border of TA B-71 and one LDP is located on the southern border, but those are located away from target sites and other ground-disturbing activities. No impacts to LDP or ERP sites are anticipated.		

Table 2-2. Summary of Potential Impacts Under All Alternatives, Cont'd

Resource	No Action	Alternative 1	Alternative 2
Soils	There would be no significant impacts to soils under the No Action Alternative. Metal concentrations in the soil would be below Eglin background and USEPA risk-based concentrations. Munition training and foot and vehicle traffic could cause soil erosion, particularly on sparsely vegetated slopes. However, adherence to management practices would decrease erosion potential. Black powder byproducts produced during static ground tests would not significantly impact soils.	There would be no significant impacts to soils under Alternative 1. Bomb expenditures would decrease, while small arms expenditures would be introduced. Munition expenditures would not result in metal concentrations in the soil exceeding USEPA risk-based concentrations. Munition training and foot and vehicle traffic could cause soil erosion, particularly on sparsely vegetated slopes. However, adherence to management practices would decrease erosion potential. Static ground testing would not significantly impact soils.	There would be no significant impacts to soils under Alternative 2. Increased munition expenditures would not result in metal concentrations in the soil exceeding USEPA risk-based concentrations. Increased munition training and foot and vehicle traffic could cause soil erosion, particularly on sparsely vegetated slopes. However, adherence to management practices would decrease erosion potential. Static ground testing would not significantly impact soils.
Water Resources	There would be no significant impacts to water resources under the No Action Alternative. Groundwater metal concentrations would not exceed USEPA risk-based thresholds. Surface water resources are located at distances from targets sufficient to minimize potential for contaminant transport, and sedimentation due to erosion would be controlled by management requirements. Wetlands would not be impacted, and no actions would modify the floodplain.	There would be no significant impacts to water resources under Alternative 1. Bomb expenditures would decrease, while small arms expenditures would be introduced. Munition expenditures would not result in metal concentrations in groundwater exceeding USEPA risk-based concentrations. Surface water resources are located at distances from targets sufficient to minimize potential for contaminant transport, and sedimentation due to erosion would be controlled by management requirements. Wetlands would not be impacted, and no actions would modify the floodplain.	There would be no significant impacts to water resources under Alternative 2. Increased munition expenditures would not result in metal concentrations in groundwater exceeding USEPA risk-based concentrations. Surface water resources are located at distances from targets sufficient to minimize potential for contaminant transport, and sedimentation due to erosion would be controlled by management requirements. Wetlands would not be impacted, and no actions would modify the floodplain.
Biological Resources	<p>No adverse impacts are expected under any Alternative.</p> <p>Several active and inactive red-cockaded woodpecker (RCW) trees exist in proximity to both test areas; 221 acres of foraging habitat exist on TA B-71 and 36 acres of foraging habitat exist on TA B-82. Foraging RCWs may avoid areas where disturbance is occurring. Pioneering RCWs may be affected by noise from daily operations and not colonize or immigrate to new areas near the test site or access roads. This could affect the growth of the RCW population adjacent to the proposed activity area. Before any tree clearing, units must coordinate with Eglin Natural Resources Section (NRS).</p>		

Table 2-2. Summary of Potential Impacts Under All Alternatives, Cont'd

Resource	No Action	Alternative 1	Alternative 2
Biological Resources, Cont'd	<p>It is unknown if the federally listed Eastern indigo snake is present on TA B-75. Eglin must comply with the USFWS Standard Protection Measures for use on the Eglin reservation as described in the Programmatic Biological Assessment for the Eastern indigo snake completed in 2008 through Eglin NRS.</p> <p>Gopher tortoise burrows may exist throughout the test areas. Training and heavy munition use should be avoided near any gopher tortoise burrows and if a gopher tortoise is sighted, activities should cease until the tortoise moves out of harm's way. Transportation and release of tortoises would follow guidelines established by the Florida Fish and Wildlife Conservation Commission (FWC).</p> <p>Potential habitat for the reticulated flatwoods salamander exists in proximity to TA B-71. A 1,500-foot buffer has been established around potential habitat to protect the reticulated flatwoods salamanders. Within this buffer, all vehicle traffic should remain on existing roads and no ground disturbing activities should occur.</p> <p>One confirmed gopher frog pond exists in proximity to TA B-82. Restriction of ground disturbing activities within 100 feet of the gopher frog ponds would avoid impacts.</p> <p>Vehicle strikes are the primary concern for bears on Eglin, thus drivers should be alert to the presence of bears to avoid impacts. The Florida black bear is unlikely to be adversely impacted by activities under this alternative.</p>		
Cultural Resources	The No Action Alternative represents the previously approved level of activity and would not adversely affect cultural resources.	No adverse effects to cultural resources are expected under Alternative 1.	No adverse effects to cultural resources are expected under Alternative 2.
Air Quality	There would be no adverse impacts to air quality from the No Action Alternative.	Munition emissions would cause a temporary, slight increase in air emissions that would not exceed the 10 percent criteria or National Ambient Air Quality Standards (NAAQS). No adverse impacts are expected for Alternative 1.	Alternative 2 would cause temporary increases in air emissions. These emissions would not exceed thresholds and no adverse impacts to air quality are expected.
Noise	The No Action Alternative activities noise levels would have no adverse impacts on potential sensitive receptors.	No adverse impacts to receptors are expected on TA B-82. Some annoyance may occur when Ground-based Midcourse Defense GMD 1 st stage Rocket Motors are detonated on TA B-71. The level of sound would not be great enough to cause adverse health effects.	The impacts for Alternative 2 are the same as Alternative 1. Noise levels would not be greater for this alternative but would occur more frequently. No adverse affects are expected to receptors from noise.

Table 2-2. Summary of Potential Impacts Under All Alternatives, Cont'd

Resource	No Action	Alternative 1	Alternative 2
Safety	<p>Since the types of munitions to be used are the same or similar to the types currently used at TAs B-71 and B-82, implementation of the No Action Alternative, Alternative 1, or Alternative 2 would not be expected to prevent or to significantly limit the ability of range managers to conduct explosive ordnance disposal (EOD) and range maintenance activities. Safety footprints or surface danger zones (SDZs) would be employed for land based training where live ordnance is used. Public access to TAs B-71 and B-82 is permanently restricted, so no safety risks to the public are expected and impacts from additional area closures would be minimal. Regardless of increased munition use, established safety procedures and policies would continue to ensure safety of Eglin personnel.</p> <p>Most areas on the Eglin Range, including TAs B-71 and B-82, have the potential for unexploded ordnance (UXO) contamination. Consultation and coordination with the 96th Civil Engineer Squadron/Explosive Ordnance Disposal Flight would mitigate any potential adverse impacts to Eglin AFB personnel from UXO. Although increases in the frequency of ordnance use would likely lead to increased instances of UXO, the current safety policies and procedures would continue to insure that there would be no adverse impacts from UXO.</p>		
Land Use	<p>There would be no changes to land use designation so there would be no impacts to land use.</p> <p>Under the No Action Alternative, there would be potential for minor and temporary impacts to recreational resources from the possible closures of recreational areas during certain testing and training missions.</p>	<p>There would be no changes to land use designation so there would be no impacts to land use.</p> <p>Under Alternative 1, there would be an increase in the potential for closures to recreational areas. However, closures would occur only for the duration of the activity and other areas would remain open for recreational activities. Therefore, impacts to recreational resources are anticipated to be minor and temporary.</p>	<p>There would be no changes to land use designation so there would be no impacts to land use.</p> <p>Under Alternative 2, there would be an increase in the potential for closures to recreational areas. However, closures would occur only for the duration of the activity and other areas would remain open for recreational activities. Therefore, impacts to recreational resources are anticipated to be minor and temporary.</p>
Socioeconomics	<p>No significant impacts were identified to the public from the level of activity approved in the 2003 TAs B-71 and B-82 PEA and therefore, no significant impacts are anticipated under the No Action Alternative.</p>	<p>Under Alternative 1, there would be a potential for more frequent noise impacts; however impacts are anticipated to be minor and temporary lasting only for the duration of the activity.</p> <p>In addition, no special risks to children or disproportionate noise impacts have been identified to areas of environmental justice concerns from activities performed under Alternative 1 at TAs B-71 and B-82. Therefore, only minor and temporary noise impacts from munition expenditures are anticipated to socioeconomic resources under Alternative 1.</p>	<p>Under Alternative 2, there would be a potential for more frequent noise impacts; however impacts are anticipated to be minor and temporary lasting only for the duration of the activity.</p> <p>In addition, no special risks to children or disproportionate noise impacts have been identified to areas of environmental justice concerns from activities performed under Alternative 2 at TAs B-71 and B-82. Therefore, only minor and temporary noise impacts from munition expenditures are anticipated to socioeconomic resources under Alternative 2.</p>

2.4 PREFERRED ALTERNATIVE

The Preferred Alternative is Alternative 2, which allows a 300-percent increase in TAs B-71 and B-82 operations over the current level of activity plus foreseeable future activities. Implementation of management actions will allow a surge in test and training activities while minimizing impacts to environmental and natural resources. The No Action Alternative and Alternative 1 are not expected to be sufficient to account for the expected growth of testing and training activities at Eglin AFB over the next 10 years. Therefore, Alternative 2 was selected as the Preferred Alternative to adequately cover the environmental analysis needed to support potential increased testing and training requirements as they occur.

The need for additional management actions is driven by legislation, regulations, and policies that protect sensitive habitats, cultural resources, and threatened and endangered species (Appendix A). Legislation pertaining to sensitive habitats, sensitive species, and exotic species includes the Endangered Species Act; AFI 32-7064, *Integrated Natural Resources Management Plan*; Executive Order (EO) 11990, *Protection of Wetlands*; and EO 13112, *Invasive Species*. Regulations on treatment of threatened and endangered species, many of which are supported in sensitive habitats, will be further described in the Biological Resources section. Several laws and regulations are pertinent to the treatment of cultural resources, such as the NHPA of 1966, as amended; the Archaeological Resources Protection Act of 1979; and AFI 32-7065, *Cultural Resources Management*, which specifies proper procedures for cultural resource management at Eglin AFB.

2.5 MANAGEMENT REQUIREMENTS

The REA was prepared with consideration that the following management requirements will be employed for all TAS B-71 and B-82 missions. The proponents are responsible for ensuring these management activities are adhered to.

Ordinance and Noise

- Observe a restriction of a maximum of 140-decibel (dB) noise level leaving the Eglin Reservation boundary. An approximate calculation is 600 times the cube root of the net explosive weight (NEW) equals the distance in feet to the reservation boundary.
- Observe a seismic shock limit from detonations of no more than 1 inch per second peak particle velocity for structure. An approximate calculation is 60 times the square root of the NEW equals distance in feet to the structure.
- Consider the effects of current weather conditions on noise, as well as other safety parameters outlined in the test directive, prior to detonation of explosive materials.
- All inert weapons, including practice bombs with spotting charge, on or near the surface must be recovered, removed, and destroyed.
- Follow regulations for cleanup of debris and hazardous materials.
- Qualified personnel (described in individual test directives) will supervise the use of all pyrotechnic devices.

- Flag pyrotechnic devices that dud. Do not try to remove. EOD will be notified for dud disposal (described in individual test directives).

Smokes

- Consult with Eglin Natural Resources Stewardship Division prior to using smoke or obscurants to ensure endangered species considerations have been made.
- Clean up debris (mandatory as described in individual test directives).
- Do not release chemicals or metals into streams or indirectly by releasing toxic aerosols in the vicinity of streams.
- Do not release chemicals, metals, or toxic aerosols within or near stands of mature longleaf pines.

Tactical Vehicle Operations

- All vehicles used as immobile targets must be rendered environmentally safe by removal of all fuels, oils, and other chemical materials.
- Tactical vehicles must be moved only on range roads.

Soil Resources

- Design vegetation control practices that minimize surface disturbance and create implementation strategies for increasing vegetative cover.
- Control the location and design of mission activities to avoid creating adverse slope shapes or gradients and/or to reduce vegetative cover.
- Locate mission activities that result in surface disturbance away from slopes sensitive to erosion.
- Establish low-growing grassland communities on severely disturbed erosion response units.
- Design concave slope segments on newly constructed targets.
- Reduce the gradients of severely eroding slopes to the degree possible and revegetate.

Water Resources

- Adhere to Eglin's Wildfire Specific Action Guide Restrictions for pyrotechnics use.
- Conduct target and ordnance debris removal and disposal of solid debris from blanks, chaff, smokes, and flares in accordance with Air Force regulations.
- Release flares at altitudes that would ensure complete burnout prior to reaching the surface. Prior to testing, coordinate with Jackson Guard concerning the fire weather index.
- Allow no deployment of flares when surface winds exceed 15 knots or when the fire index presents an unacceptable hazard.

Biological Resources

- Do not disturb wildlife food plots.
- Do not conduct military activities within areas designated as forestry research plots or restoration sites unless the 96 CEG/CEVSN has given specific written authorization.
- Coordinate planned use of pyrotechnics, explosives, or powerful munitions in the vicinity of forestry research or restoration areas with 96 CEG/CEVSN management.
- Comply with the 96 CEG/CEVSN and the Florida Fish and Wildlife Conservation Commission (FWC) established hunting, trapping, and fishing regulations, unless the 96 CEG/CEVSN and the FWC grant specific authorization to do otherwise.
- Tree clearing of any species is not permitted (exception for Navy Land Survival Training).
- Tree cutting is limited to sand pine, slash pine, live oak (for tree thinning only), and scrub oak. Longleaf pines may not be cut down for any reason.
- Ensure that all military activities are in compliance with the 96 CEG/CEVSN and the FWC established hunting, trapping, and fishing regulations, unless the 96 CEG/CEVSN and the FWC grant specific authorization.
- Coordinate all military activities that are within or near stands of mature longleaf pine and scheduled during red-cockaded woodpecker (RCW) nesting season (late April–July) with the 96 CEG/CEVSN.
- Adhere to the specific action guide regarding forest fire danger ratings.
- Do not drive nails or other objects into trees for any reason, unless there is special authorization to do so.
- Provide personnel with a description of the indigo snake, its behaviors, and protection under federal law, and give them instructions not to injure, harm, or kill this species.
- Personnel should stop activities if an eastern indigo snake is sighted and allow the snake to move away from the site before resuming activities.
- Prior to land clearing or establishment of a new target area, contact Eglin Natural Resources Section for a gopher tortoise/indigo snake survey.
- Avoid gopher tortoise burrows by a minimum of 25 feet.
- For any gopher tortoise burrows that were in imminent danger from munition testing or training, contact Eglin Natural Resources for relocation.
- Eglin would follow the *Gopher Tortoise Permitting Guidelines* (FWC, 2008) for relocation of gopher tortoises and commensals (i.e., indigo snake).
- Only transient (less than 2 hours) foot traffic and vehicular traffic on established roads/trails are allowed within a 200 foot buffer around marked RCW trees.
- Personnel should stop activities if black bear or gopher tortoise is sighted and allow the animal to move away from the site before resuming activities.

Solid Waste/Hazardous Materials

- Examine areas in which small arms, including blank ammunition, are expended and pick up casings. Recycle blank cartridge casings (as described in individual test directives).

Cultural Resources

- Leave untouched any archaeological artifacts and immediately report the location to the 96 CEG/CEVSH (described in individual test directives). However, should any inadvertent discoveries of archaeological material be made during the course of construction or demolition, all actions in the immediate vicinity would cease and efforts would be taken to protect the find from further impact. The Eglin Cultural Resource Branch, 96 CEG/CEVSH, should be contacted immediately should an unintended discovery occur.
- Report Indian artifacts of any kind (e.g., arrowheads and pottery) to the 96 CEG/CEVSH at Eglin AFB so that the area will be marked.
- Areas marked or designated as cultural resource sites will be avoided and designated as restricted access areas.

Additional Management and Monitoring Recommendations

- Log and report sightings of endangered species (for example, indigo snake) to the 96 CEG/CEVSN.
- Do not use explosives or munitions within or near stands of mature longleaf pines.
- Coordinate planned use of pyrotechnics, explosives, or powerful munitions in the vicinity of forestry research or restoration areas with Natural Resource Management.
- No new cleared target areas should be established within 200 feet of any natural water body.
- Detonations of explosives should not occur within 200 feet of water bodies.
- If any ordnance lands in stream bank areas it should be removed immediately in accordance with Air Force regulations.
- If/when monitoring of the test area is required:
 - A monitoring plan should be developed to answer specific questions regarding the impact of the proposed testing.
 - The area of the test site should be monitored for all possible areas of impact.
 - The monitoring should include, but not be limited to, chemical analysis of soils, groundwater monitoring, surface water monitoring, and endangered species surveys.

(Note: monitoring is not currently recommended for TAs B-71 and B-82).

This page is intentionally blank.

3. AFFECTED ENVIRONMENT

The affected environment section of this report describes the receptors within TAs B-71 and B-82 that are potentially impacted by testing and training operations. This chapter is organized by the following resource sections: Chemical Materials, Soils, Water Resources, Biological Resources, Cultural Resources, Air Quality, Noise, Safety, and Socioeconomics Resources.

3.1 CHEMICAL MATERIALS

Chemical materials encompass liquid, solid, or gaseous substances that are released to the environment as a result of mission activities. These materials would include munition and pyrotechnic combustion byproducts from items such as smokes and flares. Release of these materials may potentially affect air quality, water quality, soils, and sediments. The environmental analysis of chemical materials describes the potentially adverse environmental impacts from testing and training activities within TAs B-71 and B-82.

3.1.1 Hazardous Materials

According to the Resource Conservation and Recovery Act (RCRA), Section 6903(5), hazardous materials and waste are defined as substances that, because of “quantity, concentration, or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality or serious illnesses, or pose a substantial threat to human health or the environment.”

Hazardous materials as referenced here pertain to mission-related hazardous chemicals or substances meeting the requirements found in 40 CFR 261.21.24, are regulated under RCRA, and are guided by AFI 32-7042. The hazardous materials to be transported, stored, and used on site for the Proposed Action consist of fuels, munitions, and pyrotechnics.

Eglin AFB has implemented a *Hazardous Waste Management Plan*, AAC Instruction 32-7003, that identifies hazardous waste generation areas and addresses the proper packaging, labeling, storage, and handling of hazardous wastes. The plan also addresses recordkeeping; spill contingency and response requirements; and education and training of appropriate personnel in the hazards, safe handling, and transportation of these materials (U.S. Air Force, 2006a).

Specific procedures and responsibilities for responding to a hazardous waste spill or other incident are also described in the Eglin AFB *Spill Prevention, Control, and Countermeasures (SPCC) Plan* (U.S. Air Force, 2005).

Releases to the environment from munitions utilized in proficiency and qualification training require reporting to the U.S. Environmental Protection Agency (USEPA) under the Emergency Planning and Community Right-to-Know Act (EPCRA) Toxic Release Inventory (TRI) program. Training is subject to a TRI reporting threshold of 10,000 pounds per year for most common chemicals, with lower reporting thresholds for chemicals classified as persistent bioaccumulative toxic. These chemicals include mercury, with a reporting threshold of 10 pounds, and lead, with a threshold of 100 pounds. In cases when a threshold is exceeded, the installation must report on a “Form R” report to the USEPA the quantity of munition-related waste released to the environment or recovered and recycled.

Eglin AFB has procedures to comply with TRI reporting requirements and would track ordnance use associated with the proposed alternatives. This could require new procedures if proposed training activities would result in reporting thresholds being exceeded at the base for any new chemicals.

Regulations

Under federal law, the transportation of hazardous materials is regulated in accordance with the Hazardous Materials Transportation Act, 49 U.S. Code (USC) 1801 et seq. For the transportation of hazardous materials, Florida has adopted federal regulations that implement the Hazardous Materials Transportation Act, found at 49 CFR 178.

State laws pertaining to hazardous materials management include the Florida Right-to-Know Act, Florida Statutes Title 17, Chapter 252, and annotated Title 29, Section 403.721, which authorizes the Hazardous Waste Section of the FDEP and the Florida Department of Transportation Motor Carrier Compliance Department to implement 49 CFR 178.

AFI 32-7086 Supplement 1, *Hazardous Materials Management*, describes how Eglin complies with federal, state, Air Force, and DoD laws and instructions. All Eglin AFB organizations and tenants are required to follow this plan.

3.1.2 Debris

Debris includes the physical materials that are deposited on the surface of terrestrial or aquatic environments during mission activities. The potential impacts are primarily related to physical disturbances to people, wildlife, or other users of the Range, and chemical alterations that could result from the residual materials. Examples of debris deposited from activities in TAs B-71 and B-82 that may potentially result in environmental impacts include the following:

- Shell casings, canisters from signal smokes, flares, chutes from flares
- UXO (primarily inert items)
- Litter and refuse from daily mission activities, including ground troop movement

3.1.3 Legacy Debris Pit Sites

Legacy Debris Pits (LDPs) are areas where ordnance and explosive waste residues are present or buried in the water, soil, or sediment. Eglin AFB's Environmental Restoration Branch identifies and manages LDPs to monitor known and potential areas of concern regarding munitions. There are no LDP sites located within TAs B-71 or B-82. There are three LDP sites located near the western border of TA B-71 and one LDP site located on the southern border of TA B-71 which are listed in Table 3-1 and shown in Figure 3-1. Detailed information on all LDP sites can be found in the *Archives Search Report for Legacy Debris Pits at Eglin AFB* (U.S. Army Corps of Engineers [USACE], 2002). LDPs are being further investigated under the Air Force Military Munition Response Program.

Table 3-1. Legacy Debris Pit Sites Located Within Test Area B-70

Map ID	Location	Description	POI #
11	Test Area B-71 Location A	The area of concern is located next to concrete building next to test track, and is composed of a surface trash pile, which contains metal truck parts, metal fuse boxes, and other trash.	
12	Test Area B-71 Location C	There is a large trash pile of tires and miscellaneous trash. The area is easily accessible and appears to have been used by troops training.	POI-611
39	Test Area B-71 Location B	There is a trash pile approximately 30 feet by 15 feet in size located at the edge of the woods. There were no munitions found in the area, but there is ammunition packaging material inside the pit.	POI-610
40	Test Area B-71 Location D	There is a large trash pile of building materials and trash on the surface.	

Source: USACE, 2002

POI = point of interest

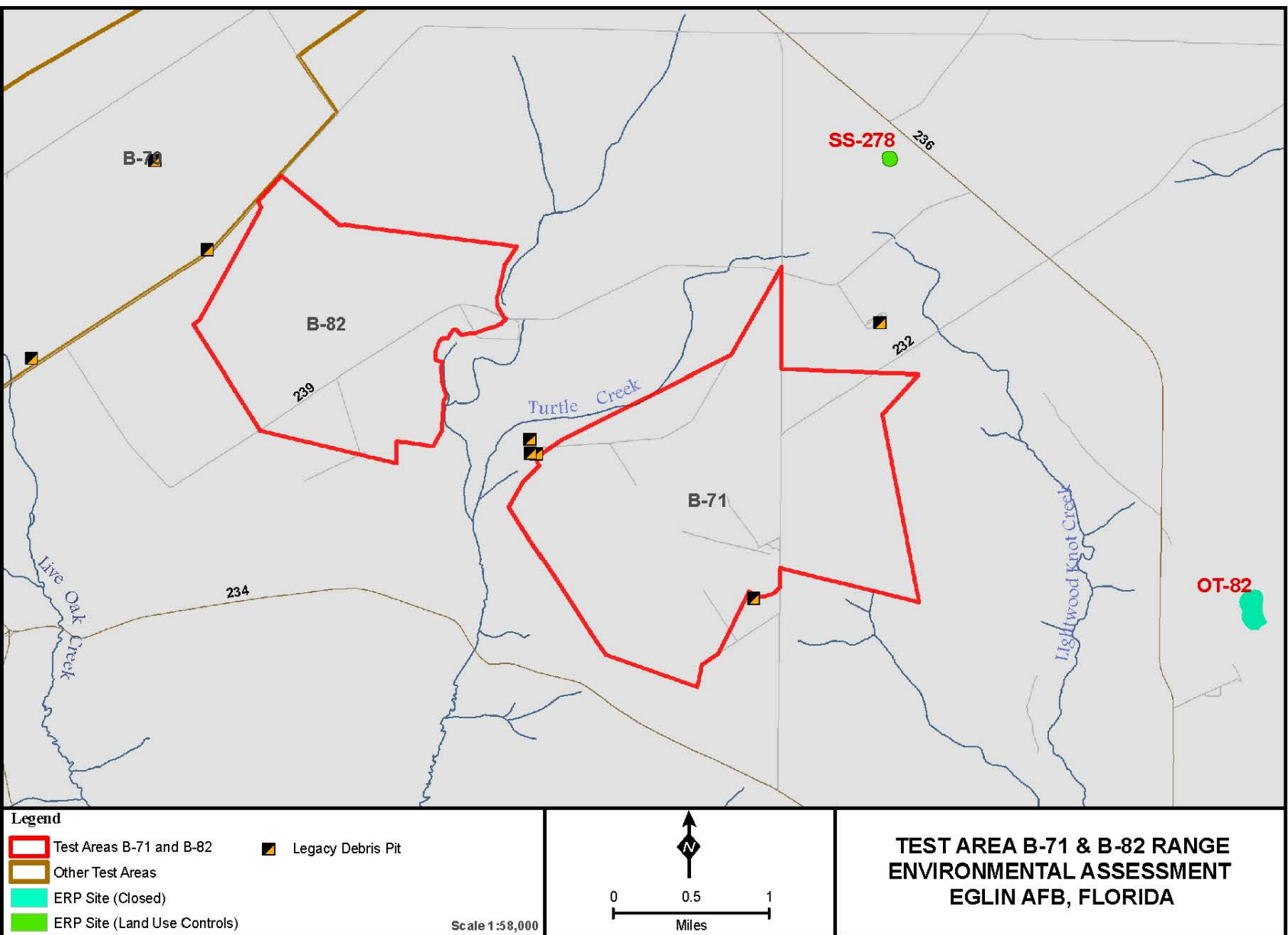


Figure 3-1. Legacy Debris Pits Located Near Test Area B-71

10/18/10

Test Areas B-71 and B-82 Range Environmental Assessment, Revision 1

Page 3-4

Eglin Air Force Base, Florida

Final

3.2 SOILS

This section provides a description of the soil found within TAs B-71 and B-82. The test areas consist entirely of the Lakeland Sand soil series. Information on erosion potential is also presented. Appendix A, *Relevant Laws, Regulations, and Policies*, provides pertinent regulations.

3.2.1 Soil Type

Soils that occur on TAs B-71 and B-82 belong to the Lakeland Sand soil series (Figure 3-2). These are very deep, excessively drained, permeable soils that formed from thick, sandy sediments. These soils are abundant on both level and steep uplands and can be up to 80 inches in depth. Lakeland sands vary in acidity from medium to very strong, resulting in varying soil colors ranging from dark, grayish brown, to yellowish-brown (USDA, 1995). Elevation of the test areas is approximately 125 feet above mean sea level (MSL).

3.2.2 Erosion

Erosion caused by human activities may occur at rates greater than that caused by natural conditions, and may have detrimental effects on soils and ecosystems. The susceptibility of soil to erosion is primarily dependent on factors such as soil texture, moisture content, pH, and ionic strength of the eroding water. The probability of erosion generally declines with increases in the amount of clay and organic matter content. In contrast, uniform silts and sands tend to have a higher erosion probability. Slope angle and length are the primary topographic variables influencing rainfall erosion. Vegetation plays a role in the interception and diffusion of water energy from rain splash and overland water flows.

Key properties of Lakeland Sand soils, which comprises all of the soil on TAs B-71 and B-82, include quartz sand texture, excessive drainage, high permeability rates, low organic matter and clay content, poor soil structure (low cohesion, adhesion, and aggregate stability), and absence of active soil-forming processes. These characteristics suggest a moderate to high potential for soil erosion at the test areas.

On TA B-71, water runoff from the asphalt grid is channeled into two concrete drainways. Erosion along the perimeter road has been severe in the past, limiting usage to four-wheel drive vehicles in some areas. Erosion is prevalent on TA B-82, primarily in the area of the clay grid. The clay grid area is sandy, sloped in places, and sparsely vegetated. Sediments appear to erode from roughly the center of the clay grid where elevation is highest, outward in several directions. Vegetation becomes thicker along the perimeter of TA B-82, and signs of erosion are not readily apparent.

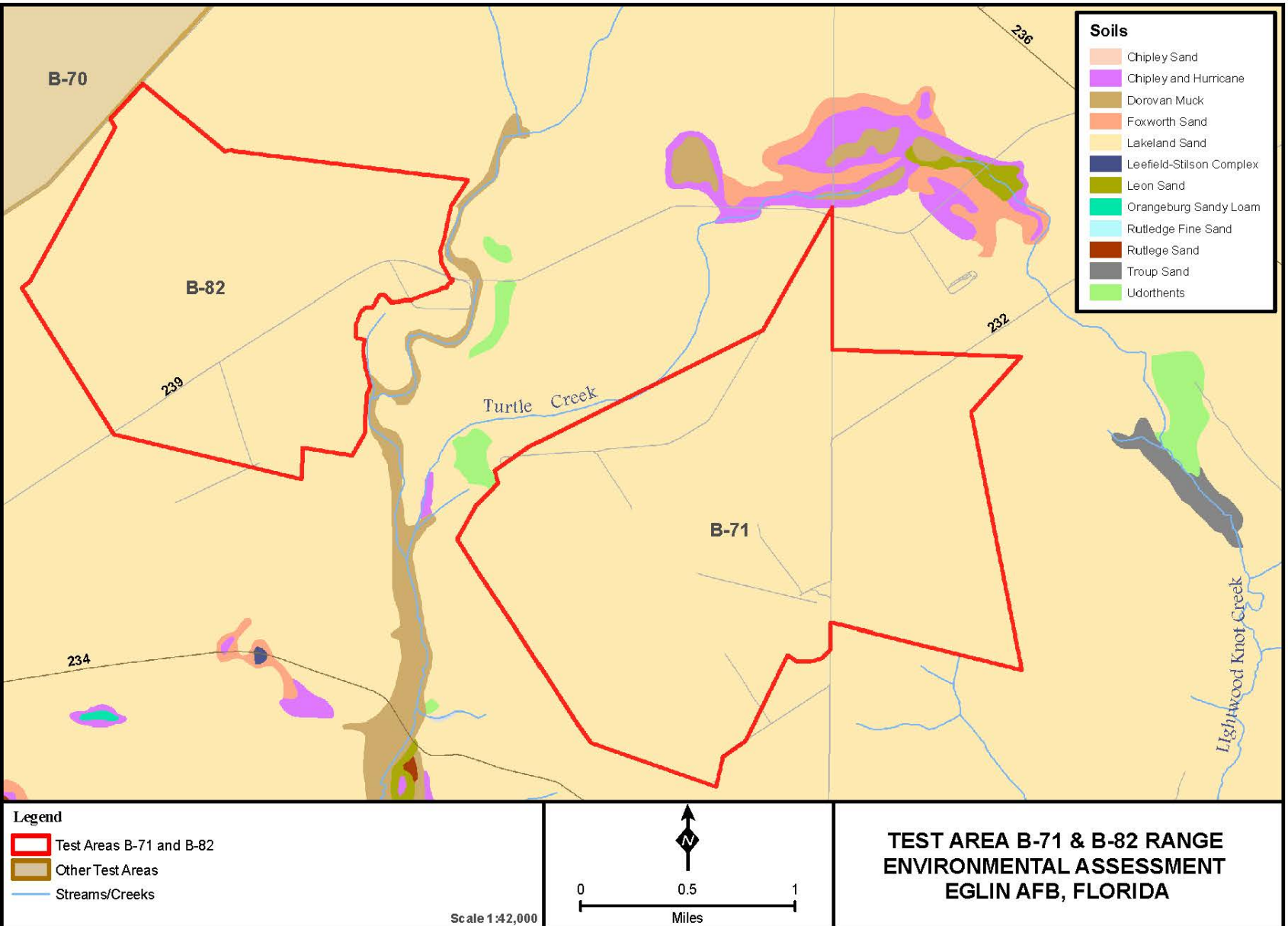


Figure 3-2. Soil Types Within Test Areas B-71 and B-82

3.3 WATER RESOURCES

This section describes water resources on TAs B-71 and B-82. Water resources include groundwater, surface water, wetlands, floodplains, and the coastal zone. Site-specific information on the water resources associated with the test areas is contained in the following paragraphs. Appendix A, *Relevant Laws, Regulations, and Policies*, provides pertinent regulations.

3.3.1 Groundwater

Two major aquifers underlie Eglin AFB: the Surficial Aquifer, also known as the Sand and Gravel Aquifer, and the Floridan Aquifer. The Surficial Aquifer is a generally unconfined (water table), near-surface unit separated from the underlying confined (under pressure) Floridan Aquifer by the low-permeability Pensacola Clay confining bed. The Surficial Aquifer is mainly composed of clean, fine-to-coarse sand and gravel, while the Floridan Aquifer consists of a thick sequence of interbedded limestone and dolomite. Water quality of the Surficial Aquifer is generally good, but is vulnerable to contamination from surface pollutants due to its proximity to the ground surface (U.S. Air Force, 2003a).

Water from the Surficial Aquifer is not a primary source of domestic or public water supply on Eglin because of the large quantities of higher quality water available from the underlying upper limestone of the Floridan Aquifer (U.S. Air Force, 2003a). Water drawn from the upper limestone of the Floridan Aquifer is of suitable quality for most uses, and is the primary source of water used at Eglin AFB. The top of the aquifer is about 50 feet below MSL in the northeast corner of the base and increases to about 700 feet below MSL in the southwestern area of the base (McKinnon and Pratt, 1998).

The Surficial Aquifer system is in direct contact with surface waters on Eglin. Discharge of groundwater constitutes the baseflow for most streams and rivers, such as Turtle Creek and West Branch near the test areas. The position of the Surficial Aquifer near the surface and its relatively high percolation rates make the aquifer vulnerable to contamination by surface pollutants. Lateral migration of contaminants towards surface water discharge points potentially facilitates the transfer of groundwater pollutants to area streams, rivers, and wetlands.

3.3.2 Surface Water

Surface waters are any waters that lie above ground water, such as streams, springs, ponds, lakes, rivers, bayous, and bays. There are no surface waters located within the boundaries of TAs B-71 and B-82. Turtle Creek and West Branch are the only surface waters near the test areas. Turtle Creek lies between the two test areas, while West Branch occurs adjacent to the southern boundary of TA B-71. A portion of the Turtle Creek riparian zone lies within TA B-71 (Figure 3-3). Turtle Creek flows to the East Bay River, which in turn flows to East Bay and the Pensacola Bay system. West Branch occurs in the Choctawhatchee Bay Basin and flows south into Choctawhatchee Bay (U.S. Air Force, 2003a).

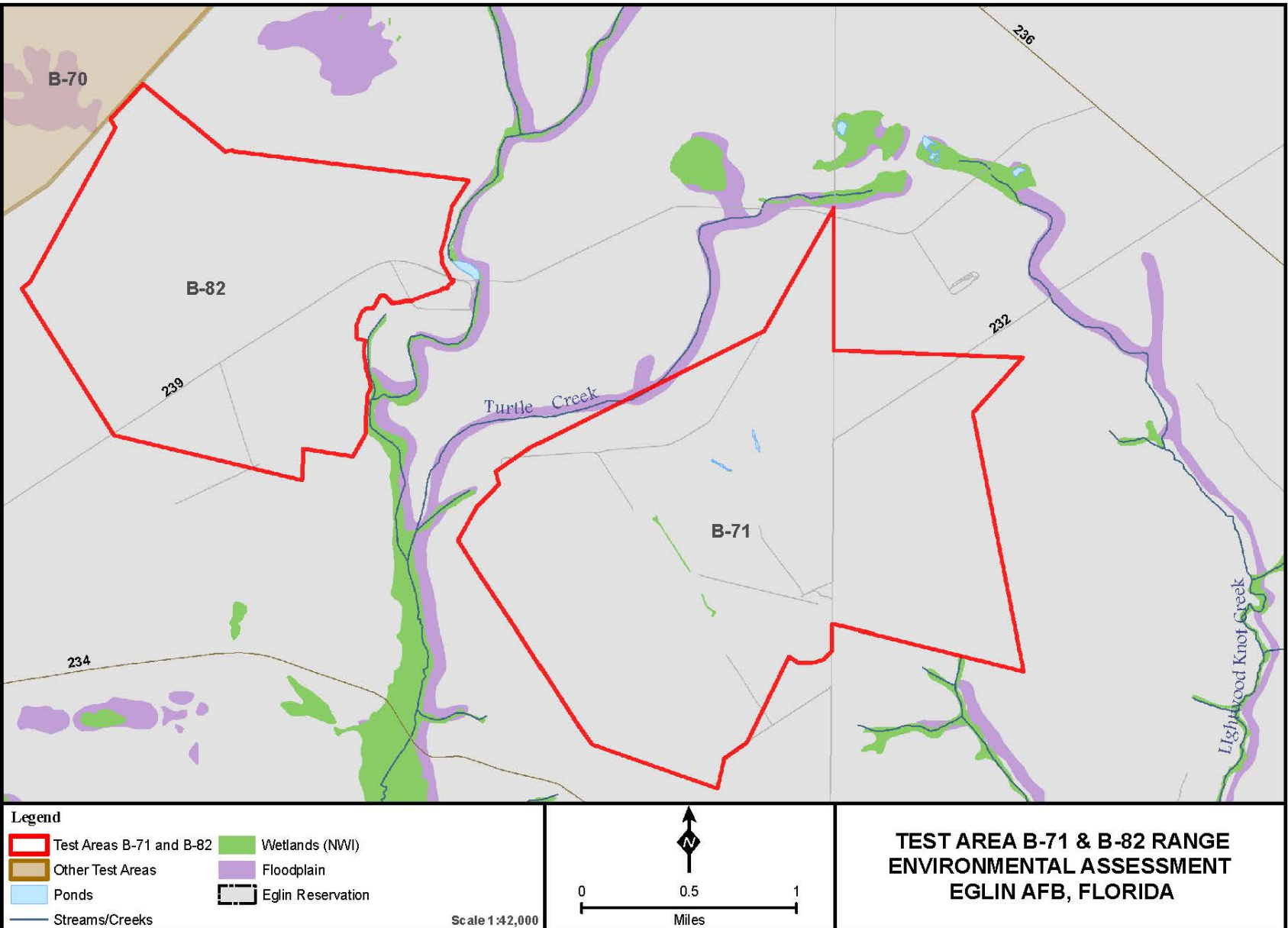


Figure 3-3. Water Resources Located on Test Areas B-71 and B-82

10/18/10

Test Areas B-71 and B-82 Range Environmental Assessment, Revision 1

Eglin Air Force Base, Florida

Final

The state of Florida has developed and retains jurisdiction for surface water quality standards for all waters of the state in accordance with the provisions of the Clean Water Act (CWA). Section 303 of the CWA requires the state to establish water quality standards for waterways, to identify those that fail to meet the standards, and to take action to clean up these waterways. Florida recently adopted the Impaired Waters Rule (IWR) (Florida Administrative Code [FAC] Chapter 62-303), with amendments, as the new methodology for assessing the state's waters for 303(d) listing. The FDEP submits names of surface waters that are determined to be impaired, using the methodology in the IWR and adopted by secretarial order, to the USEPA for approval as Florida's 303(d) list. The FDEP submits updates to Florida's 303(d) *List of Impaired Surface Waters* to the USEPA every two years. The 2006 *Integrated Water Quality Assessment for Florida: 2006 305(b) Report* and *303(d) List Update* (FDEP, 2006a) satisfy the listing and reporting requirements of Sections 303(d) and 305(b) of the CWA.

Surface waters on Eglin AFB are Class III waters, meaning that they are designated for "recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife" (FDEP, 2006a). Impaired waters on or adjacent to Eglin AFB include: Boggy Bayou, Poquito Bayou, Rocky Bayou State Park, Choctawhatchee Bay, East Bay, and Yellow River (FDEP, 2006b; FDEP, 2007). The land areas of TAs B-71 and B-82 that drain into basins constitute a small fraction of the total land area that drains into the receiving waters. Industry, agriculture, and waste processing in these areas are major contributors of water runoff and effluent components to the receiving water bodies. There is no clear association between the status of the basins and activities occurring on TAs B-71 and B-82.

3.3.3 Wetlands

Wetlands are areas of transition between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water (USFWS, 1979). Abiotic and biotic environmental factors such as morphology, hydrology, water chemistry, soil characteristics, and vegetation contribute to the diversity of wetland community types. The term *wetlands* describe marshes, swamps, bogs, and similar areas. Local hydrology and soil saturation largely affect soil formation and development, as well as the plant and animal communities found in wetland areas (USEPA, 1995). Wetlands are often categorized by water patterns (the frequency or duration of flooding) and by location in relation to upland areas and water bodies. Wetland hydrology is considered one of the most important factors in establishing and maintaining wetland processes (Mitsch and Gosselink, 2000).

"Jurisdictional wetlands" are those over which the USACE has regulatory control under Section 404 of the CWA. Wetlands are defined in the USACE Wetland Delineation Manual as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE, 1987). The majority of jurisdictional wetlands in the United States are described using three principal wetland delineation criteria: hydrophytic vegetation, hydric soils, and hydrology (USACE, 1987). The USFWS uses a simpler classification system that is satisfied by any one of the above three characteristics.

The USACE is the lead agency in protecting wetland resources and invokes jurisdiction over federal wetlands (33 CFR 328.3) under Section 404 of the CWA (30 CFR 330) and Section 10 of the Rivers and Harbors Act (30 CFR 329). The USEPA assists the USACE (in an administrative capacity) in the protection of wetlands (40 CFR 225.1 to 233.71). The state of Florida regulates wetlands under the Wetlands/Environmental Resource Permit program under Part IV, Florida Statutes Section 373.

In addition, the USFWS and the National Marine Fisheries Service (NMFS) have important advisory roles. The FDEP's Chapter 62-312, *Dredge and Fill Program*, affords regulatory protection to wetland resources (i.e., protection from excavating or filling a wetlands area with dirt, rip-rap, etc.) at the state level. The FDEP issues a Section 401 certification under the authority of the CWA (40 CFR 230.10[b]). Section 401 of the CWA requires federal agencies to obtain certification from the state before issuing permits that would result in increased pollutant loads to a water body. The certification is issued only if such increased loads would not cause or contribute to exceedances of water quality standards (USEPA, 2006).

Wetlands do not occur within the borders of TAs B-71 and B-82. However, wetland areas exist adjacent to Turtle Creek, which runs between the test areas, and West Branch, which lies south of TA B-71. Small portions of these wetlands abut the test area boundaries (Figure 3-3).

3.3.4 Floodplains

Floodplains are lowland areas adjacent to surface water bodies (i.e., lakes, wetlands, and rivers) that are periodically covered by water during flooding events. Floodplains and riparian habitat are biologically unique and highly diverse ecosystems supporting a rich diversity of aquatic and terrestrial species (Mitsch and Gosselink, 2000). Floodplain vegetation promotes bank stability and provides a shading effect to moderate water temperatures. Vegetation and soils act as water filters, intercepting surface water runoff before it reaches lakes, streams, or rivers, and storing floodwaters during flood events. This filtration process aids in the removal of excess nutrients, pollutants, and sediments from the water and helps reduce the need for costly cleanup and sediment removal. Floodplains also reduce downstream flooding by increasing upstream storage in wetlands, sloughs, back channels, side channels, and former channels.

Any actions being considered by federal agencies must be evaluated to determine whether they would occur within a floodplain. Floodplains that must be considered include those areas with a 1-percent chance of being inundated by floodwater in a given year (also known as a 100-year floodplain). Executive Order 11988, *Floodplain Management* (1977, 42 *Federal Register* 26951), requires federal agencies to avoid adverse impacts associated with the occupancy and modification of floodplains and to avoid floodplain development whenever possible. Additionally, EO 11988 requires federal agencies to make every effort to reduce the risk of flood loss, to minimize the impact of floods on human health, safety, and welfare, and to preserve the natural beneficial value of floodplains. The order stipulates that federal agencies proposing actions in floodplains consider alternative actions to avoid adverse effects, to avoid incompatible development in the floodplains, and to provide opportunity for early public review of any plans

or proposals. If adverse effects are unavoidable, the proponent must include mitigation measures in the action to minimize impacts.

Parts of the floodplain that are also considered wetlands will, in addition to floodplain zonings, receive protection from federal, state, and local wetland laws. These laws, such as the USACE Section 404 Permit Program, regulate alterations to wetlands to preserve both the amount and integrity of the nation's remaining wetland resources. Specific wetland regulations are described in Section 3.3.3.

The 100-year floodplain associated with Turtle Creek occurs along the border of TAs B-71 and B-82. These floodplains are not located near mission areas, facilities, or instrumentation (Figure 3-3). Other floodplains occur in association with surrounding creeks and wetlands near the test areas.

3.3.5 Coastal Zone

The term *coastal zone* is defined as coastal waters and adjacent shore lands, which strongly influence one another, located in proximity to the several coastal states. The coastal zone includes islands, transitional and inner tidal areas, salt marshes, wetlands, and beaches. Coastal waters are defined as any waters adjacent to the shoreline that contain a measurable amount of sea water, including but not limited to sounds, bays, lagoons, bayous, ponds, and estuaries. The seaward boundary of the coastal zone is the limit of state waters, which for the Gulf coast of Florida is nine nautical miles from shore. The entire landmass of Florida is considered part of the coastal zone and is subject to the CZMA.

Federal agency activities potentially impacting the coastal zone are required to be consistent, to the maximum extent practicable, with approved state Coastal Zone Management Programs. Federal agencies make determinations as to whether their actions are consistent with approved state plans. Eglin AFB submits consistency determinations to the state for review and concurrence. All relevant state agencies must review the Proposed Action and issue a consistency determination. The Florida Coastal Management Program is composed of 23 Florida Statutes that are administered by 11 state agencies and 4 of the 5 water management districts.

Components of the Proposed Action would take place within the jurisdictional concerns of the FDEP and therefore would require a consistency determination with respect to Florida's Coastal Zone Management Plan and the CZMA (Appendix E).

3.4 BIOLOGICAL RESOURCES

Biological resources include the native and introduced terrestrial and aquatic plants and animals found on and around TAs B-71 and B-82. The habitats of Eglin AFB are home to an unusually diverse biological community including several sensitive species and habitats, many of which are present on or within 1 kilometer of TAs B-71 and B-82.

3.4.1 Ecological Associations

Four broad matrix ecosystems exist on Eglin AFB: Sandhills, Flatwoods, Wetlands/Riparian, and Barrier Island. The ecosystems are defined by floral, faunal, and geophysical similarities. Artificially maintained open grasslands/shrublands and urban/landscaped areas also exist on Eglin, primarily on test areas or on the Main Base. Although grasslands/shrublands and urban/landscaped areas are not true ecological associations, they are included in this section as land uses as they are present within the study area.

Test Area B-71 is predominately open grasslands/shrublands with interspersed sandhills and urban/landscaped areas. Test Area B-82 is composed of open grasslands/shrublands and urban/landscaped areas (Figure 3-4). Areas immediately adjacent to TAs B-71 and B-82 are sandhills, wetland/riparian, and flatwoods. A list of typical species found within each ecological association is provided in Table 3-2, while detailed descriptions of the ecological associations are found in Appendix D, *Biological Resources*.

3.4.2 Sensitive Habitats

Sensitive habitats include areas that the federal government, state government, or the DoD have designated as worthy of special protection due to certain characteristics such as high species diversity, rare plant species, or other unique features. There are no sensitive habitats located within the boundaries of TAs B-71 and B-82. Sensitive habitats located in close proximity to the test areas include wetlands, floodplains and High Quality Natural Communities. Wetlands and floodplains are discussed in detail in the Water Resources section.

High Quality Natural Communities

Specific areas exist within Eglin AFB that are ecologically unique due to their high quality examples of natural communities or presence of rare species. These areas were identified by the Florida Natural Areas Inventory through a project funded by the DoD Legacy Resource Management Program. Termed “High Quality Natural Communities” (HQNCs), these areas are distinguished by the uniqueness of the community, ecological condition, species diversity, and presence of rare species. There are no HQNCs located within the boundaries of TAs B-71 and B-82; however, an area of HQNC is located on the southeastern edge of the boundary of TA B-71 (Figure 3-5).

3.4.3 Sensitive Species

Sensitive species are those species protected under federal or state law, including migratory birds and threatened and endangered species. An *endangered* species is one that is in danger of extinction throughout all or a significant portion of its range. A *threatened* species is any species that is *likely* to become endangered within the foreseeable future throughout all or a significant portion of its range.

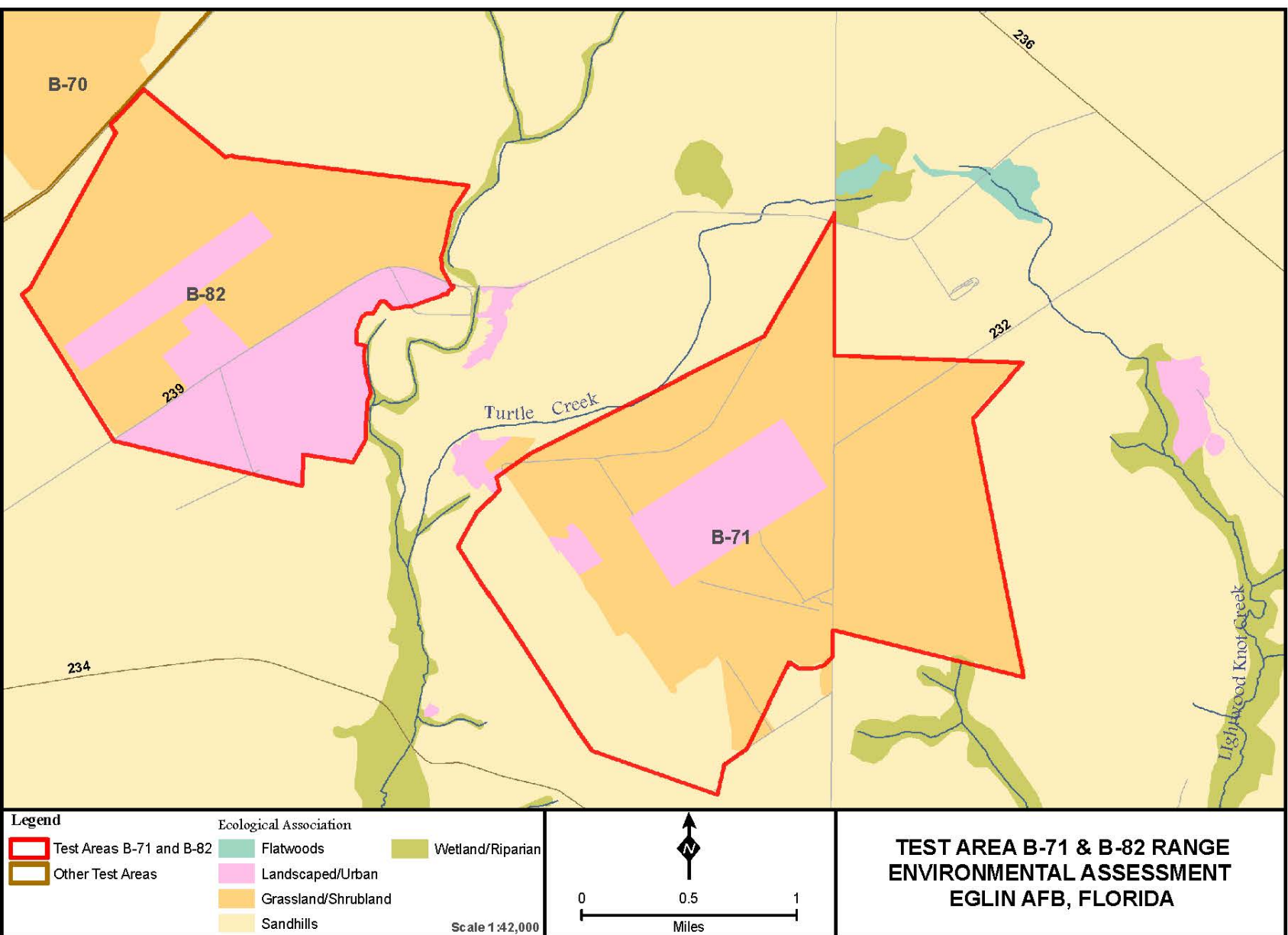


Figure 3-4. Ecological Associations Found on or Near Test Areas B-71 and B-82

10/18/10

Test Areas B-71 and B-82 Range Environmental Assessment, Revision 1

Page 3-13

Eglin Air Force Base, Florida

Final

Table 3-2. Typical Species Found Within the Sandhills, Wetland/Riparian, Flatwoods, and Open Grassland/Shrubland Ecological Associations

Plants		Animals	
Common Name	Scientific Name	Common Name	Scientific Name
Sandhills Ecological Association			
Long Leaf Pine	<i>Pinus palustris</i>	Red-cockaded Woodpecker	<i>Picoides borealis</i>
Turkey Oak	<i>Quercus laevis</i>	Bobwhite Quail	<i>Colinus virginianus</i>
Blackjack Oak	<i>Q. marilandica</i>	Great Horned Owl	<i>Bubo virginianus</i>
Bluejack Oak	<i>Q. incana</i>	Gopher Tortoise	<i>Gopherus polyphemus</i>
Wiregrass	<i>Aristida stricta</i>	Indigo Snake	<i>Drymarchon corais</i>
Saw Palmetto	<i>Serona repens</i>	Diamondback Rattlesnake	<i>Crotalus adamanteus</i>
Bracken Fern	<i>Pteridium aquilinum</i>	Six-lined Racerunner	<i>Cnemidophorus sexlineatus</i>
Blueberry	<i>Vaccinium spp.</i>	Florida Black Bear	<i>Ursus americanus floridanus</i>
Yaupon	<i>Ilex vomitoria</i>	Fox Squirrel	<i>Sciurus niger</i>
Gallberry	<i>Ilex glabra</i>	Least Shrew	<i>Cryptodius parva</i>
Gopher Apple	<i>Licania michauxii</i>	Cottontail Rabbit	<i>Sylvilagus floridanus</i>
Blackberry	<i>Rubus cuneifolius</i>	Pocket Gopher	<i>Geomys pinetus</i>
Sand Pine	<i>Pinus Clausa</i>	White-tailed Deer	<i>Castor canadensis</i>
Pine-woods Bluestem	<i>Andropogon arctatus</i>	Feral Pig	<i>Sus scrofa</i>
Wiregrass	<i>Aristida stricta</i>	Raccoon	<i>Procyon lotor</i>
Wetland and Riparian Ecological Association (Freshwater)			
Yellow Water Lily	<i>spp.</i>	Raccoon	<i>Procyon lotor</i>
Saw Grass	<i>Cladium jamaicensis</i>	Florida Black Bear	<i>Ursus americanus floridanus</i>
Cattail	<i>Typha domingensis</i>	Sherman's Fox Squirrel	<i>Sciurus niger shermani</i>
Phragmites	<i>Phragmites australis</i>	American Alligator	<i>Alligator mississippiensis</i>
White Cedar	<i>Chamaecyparis thyoides</i>	Pine Barrens Tree Frog	<i>Hyla andersonii</i>
Water Tupelo	<i>Nyssa biflora</i>	Five-lined Skink	<i>Eumeces fasciatus</i>
Pitcher Plant	<i>Sarracenia purpurea</i>	Green Anole	<i>Anolis carolinensis</i>
Red Titi	<i>Cyrilla racemiflora</i>	Garter Snake	<i>Thamnophis sirtalis</i>
Tulip Poplar	<i>Liriodendrom tulipifera</i>	Indigo Snake	<i>Drymarchon corais</i>
Sweet Bay Magnolia	<i>Magnolia virginiana</i>	American Beaver	<i>Castor canadensis</i>
Red Bay	<i>Persea borbonia</i>	Parula Warbler	<i>Parula americana</i>
Flatwoods Ecological Association			
Longleaf Pine	<i>Pinus palustris</i>	Wood Duck	<i>Aix sponsa</i>
Runner Oak	<i>Quercus pumila</i>	Red-winged Blackbird	<i>Agelaius phoenicius</i>
Saw Palmetto	<i>Serona repens</i>	Cotton Mouth	<i>Agkistridon piscivorus</i>
St. John's Wort	<i>Hypericum brachyphyllum</i>	Flatwoods Salamander	<i>Ambystoma cingulatum</i>
Slash Pine	<i>Pinus elliotii</i>	River Otter	<i>Lutra canadensis</i>
Black Titi	<i>Cliftonia monophylla</i>	Beaver	<i>Castor canadensis</i>
Milkweed	<i>Asclepias humistrata</i>	Florida Black Bear	<i>Ursus americanus floridanus</i>
Pitcherplant	<i>Sarracenia spp.</i>	Gray Fox	<i>Urocyon cinereoargenteus</i>
Open Grassland/Shrubland Ecological Association			
Switchgrass	<i>Panicum virgatum</i>	Red-shouldered Hawk	<i>Buteo lineatus</i>
Broomsedge	<i>Andropogon virginicus</i>	Southeastern American Kestrel	<i>Falco sparverius paulus</i>
Big Bluestem	<i>Schizachyrium spp.</i>	Florida Burrowing Owl	<i>Athene cunicularia</i>
Yellow Indian Grass	<i>Sorghastrum spp.</i>	Flycatchers	<i>Tyrannidae spp.</i>
Purple Lovegrass	<i>Eragrostis spectabilis</i>	Cotton Mouse	<i>Peromyscus gossypinus</i>
Woolly Panicum	<i>spp.</i>	Slender Glass Lizard	<i>Ophisaurus attenuatus</i>
Forbs	<i>Panicum virgatum</i>	Gopher Tortoise	<i>Gopherus polyphemus</i>

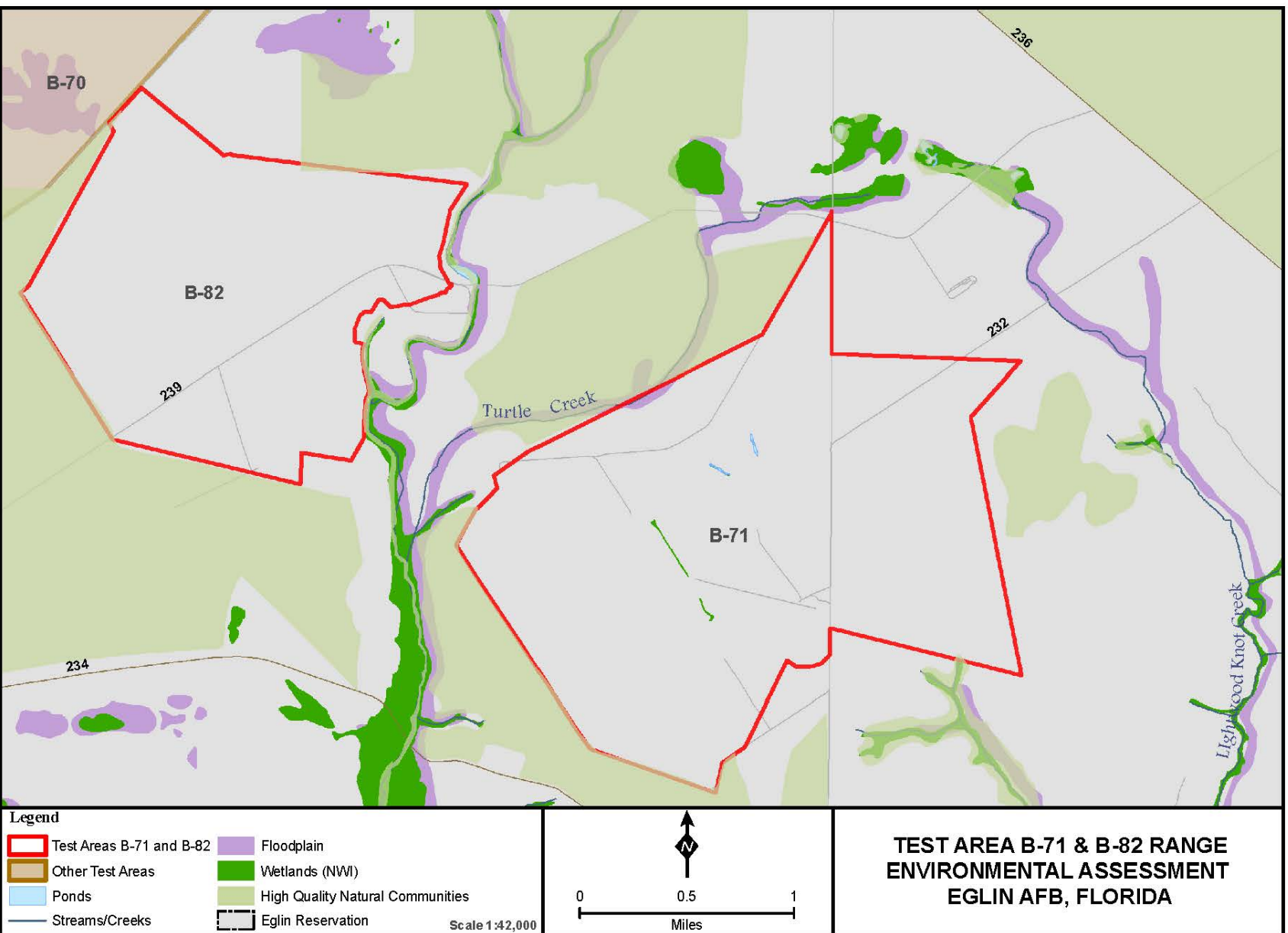


Figure 3-5. Sensitive Habitats Found on or Near Test Areas B-71 and B-82

10/18/10

Test Areas B-71 and B-82 Range Environmental Assessment, Revision 1

Page 3-15

Eglin Air Force Base, Florida

Final

The Endangered Species Act (ESA) of 1973 (16 USC 1531 to 1544; 1997–Supp) was enacted to provide for the conservation of endangered and threatened species and the ecosystems on which they depend. Air Force Policy Directive 32-70 directs the implementation of the ESA. Certain federal activities may require an ESA Section 7 consultation with the USFWS and/or the NMFS if impacts to federally listed species are possible.

Air Force Instruction 32-7064 provides details on how to manage natural resources in such a way as to comply with federal, state, and local laws and regulations. This AFI calls for the protection and conservation of state-listed species when not in direct conflict with the military mission. Eglin applies for appropriate permits for actions that may affect state listed species (such as monitoring and handling), and also cooperates with the FWC to further the goals of the Florida State Wildlife Conservation Strategy.

Migratory birds are protected under the Migratory Bird Treaty Act (16 USC 703-712; 1997-Supp) and EO 13186. A migratory bird is defined by the USFWS as any species or family of birds that lives, reproduces, or migrates within or across international borders at some point during their annual life cycle. Federal agencies are to integrate bird conservation principles, measures, and practices into agency activities, and are to avoid or minimize adverse impacts on migratory bird resources. Also, federal agencies must provide notice to the USFWS in advance of conducting an action that is intended to take migratory birds.

Sensitive species found on or near TAs B-71 and B-82 are listed in Table 3-3 and are depicted in Figure 3-6 and Figure 3-7. No sensitive plant species are located within the boundaries of TAs B-71 or B-82. Detailed descriptions of these species are located in Appendix D, *Biological Resources*.

Table 3-3. Sensitive Species Found on or Near Test Areas B-71 and Test Area B-82

Scientific Name	Common Name	Status
Amphibians		
<i>Ambystoma bishopi</i>	Reticulated Flatwoods Salamander	FE, SSC
<i>Rana okaloosae</i>	Florida Bog Frog	SSC
Reptiles		
<i>Pituophis melanoleucus mugitus</i>	Florida Pine Snake	SSC
<i>Drymarchon corias couperi</i>	Eastern Indigo Snake	FT, ST
<i>Gopherus polyphemus</i>	Gopher Tortoise	ST
Birds		
<i>Falco sparverius paulus</i>	Southeastern American kestrel	ST; MBTA
<i>Picoides borealis</i>	Red-cockaded Woodpecker	FE, ST; MBTA
Mammals		
<i>Ursus americanus floridanus</i>	Florida Black Bear	ST

FE = federally endangered; FCE = federal consideration is encouraged; FT = federally threatened; MBTA = protected under the Migratory Bird Treaty Act; ST = state threatened; SSC = state species of special concern

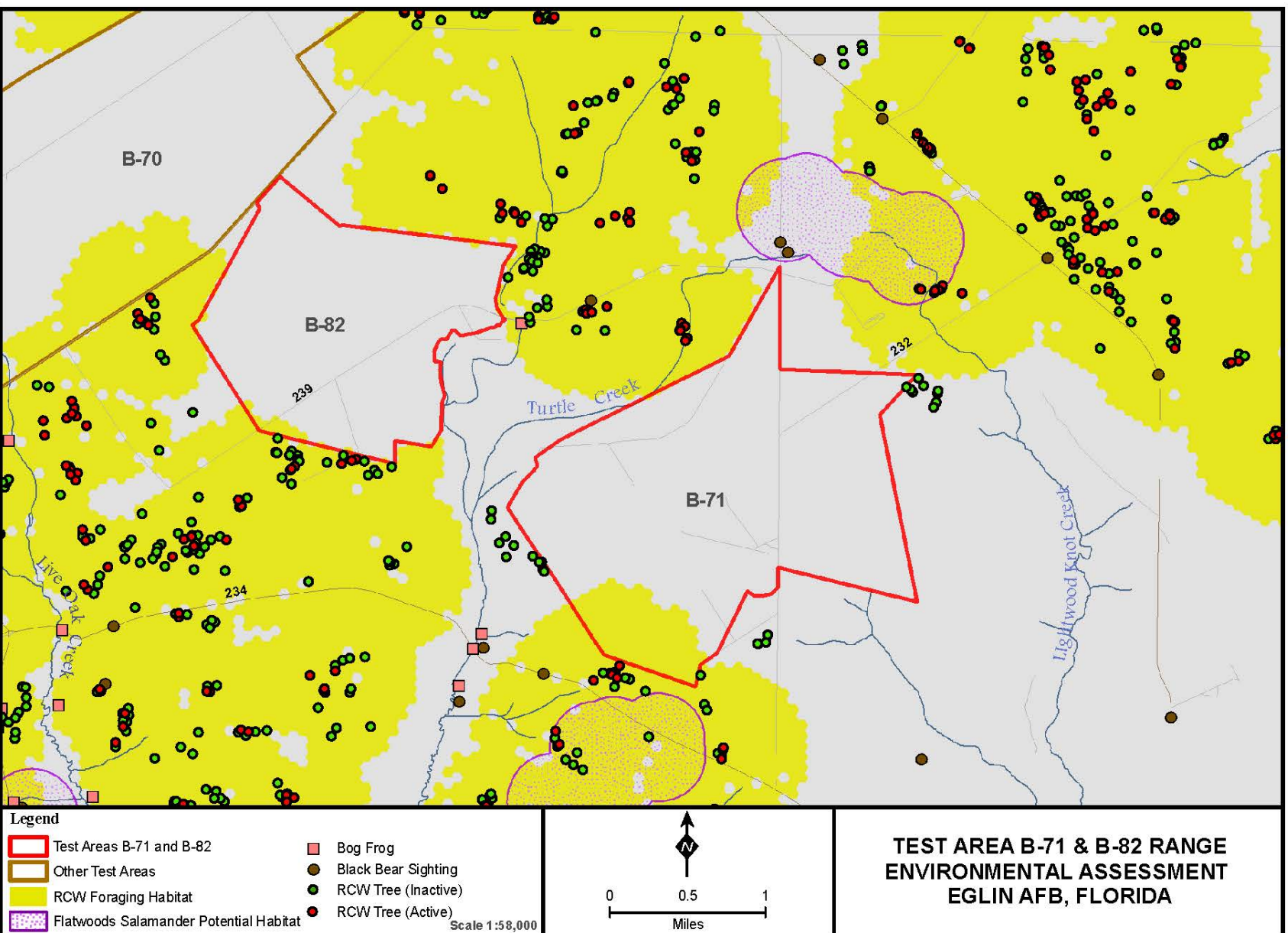


Figure 3-6. Sensitive Species Found on or Near Test Areas B-71 and B-82

10/18/10

Test Areas B-71 and B-82 Range Environmental Assessment, Revision 1

Page 3-17

Eglin Air Force Base, Florida

Final

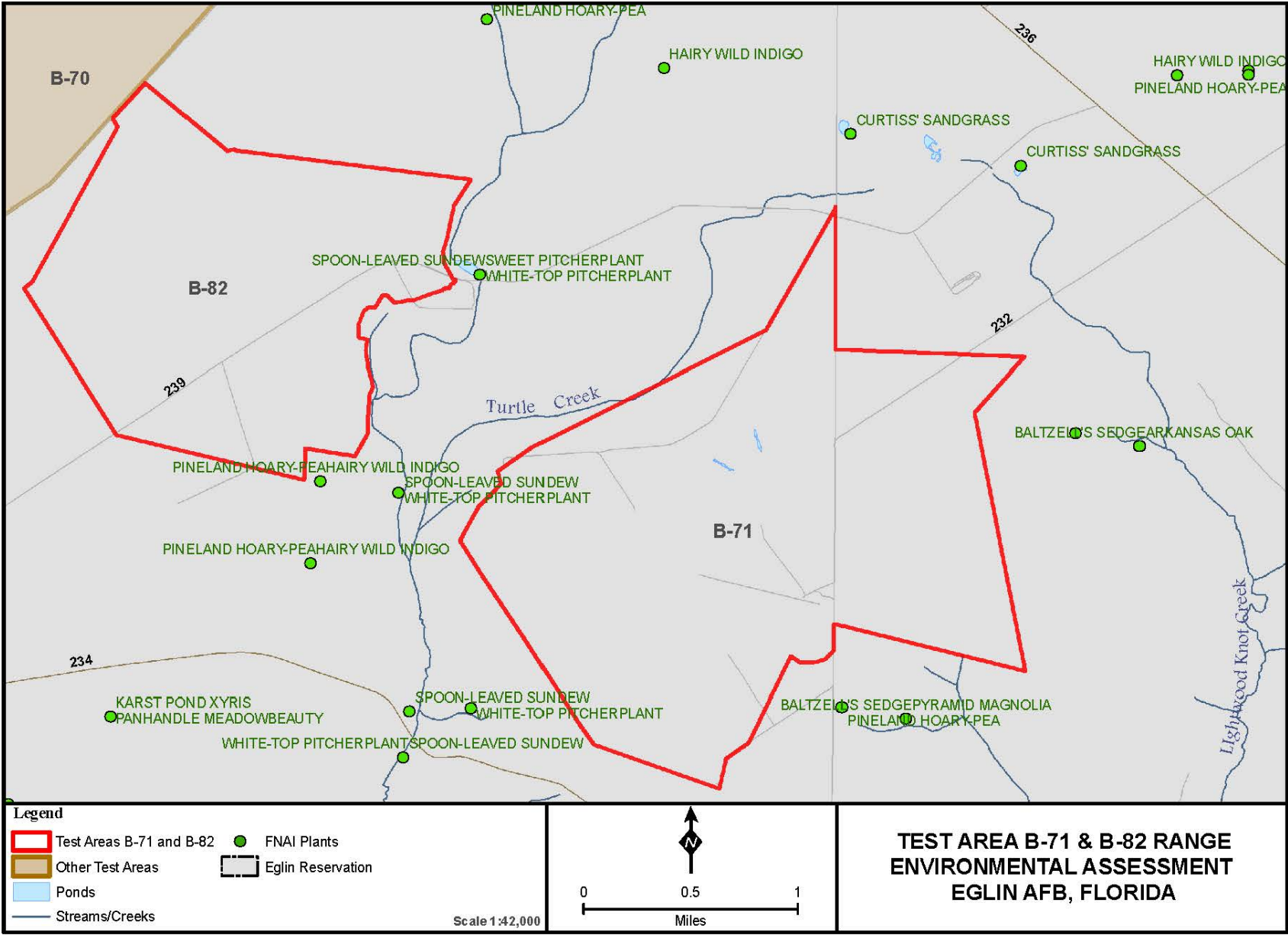


Figure 3-7. Sensitive Plants Found on or Near Test Areas B-71 B-82

10/18/10

Test Areas B-71 and B-82 Range Environmental Assessment, Revision 1

Page 3-18

Eglin Air Force Base, Florida

Final

3.4.4 Invasive Non-native Species Management

Invasive Non-native Species (INS) include plants, animals, insects, diseases, and other organisms that are becoming established and spreading at an alarming rate throughout the world. An invasive species can be defined as a species that is non-native to an ecosystem and whose intentional or accidental introduction causes or is likely to cause environmental or economic damage or harm to human health.

The Eglin AFB INS Management Program focuses on invasive non-native plant and animal species that cause or may cause negative environmental impacts to Eglin ecosystems. Some of the main invasive non-native species of concern are Chinese tallow, cogon grass, Japanese climbing fern, Chinese privet, torpedo grass, feral pigs, and feral cats (U.S. Air Force, 2006). The program's purpose is to protect the integrity of Eglin's natural ecosystems by reducing and controlling the spread of INS. The plan includes a recommendation to limit foot traffic and vehicle traffic in areas where INS are present to prevent the spread of the invasive and exotic species. Equipment moving through these areas needs to be washed so that all seedlings are removed before the equipment is transferred to a noncontaminated area. Standard operating procedures dictate that all vehicles are cleaned prior to use, which would lessen or eliminate the potential for the spread of INS.

3.5 CULTURAL RESOURCES

As a federal agency, Eglin AFB is legally required to consider the effects its actions may have on historic properties existing on the Eglin range complex. This includes all properties being utilized by other federal agencies such as the Navy, in this case. These requirements are considered under AFI 32-7065 (U.S. Air Force, 2004). Mandating federal regulations are the Antiquities Act of 1906, the Historic Sites Act of 1935, the NEPA of 1969, the NHPA of 1966 as amended, 36 CFR Part 800, the Archaeological and Historic Preservation Act of 1974, the Archaeological Resources Protection Act of 1979, the Native American Graves Protection and Repatriation Act of 1990, and the American Indian Religious Freedom Act. The act that has the most influence on cultural resources management at Eglin AFB is the NHPA (U.S. Air Force, 2004).

The NHPA of 1966 was enacted to set federal policy for managing and protecting significant historic properties. Federal agencies must identify historic properties and consult with the Advisory Council on Historic Preservation and State Historic Preservation Office (SHPO) (U.S. Air Force, 2004). Section 106 of the NHPA requires that federal agencies analyze the impacts of federal activities on historic properties, or cultural resources included in, or eligible for inclusion in, the NRHP.

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, and any other physical evidence of human activity considered relevant to a culture or community for scientific, traditional, religious, or other reasons. They include archaeological resources (both prehistoric and historic), historic architectural resources, and American Indian sacred sites and traditional cultural properties. Historic properties (as defined in 36 CFR 60.4) are significant

archaeological, architectural, or traditional resources that are defined as either eligible or ineligible for listing in the National Register.

3.5.1 Region of Influence and Existing Conditions

Archaeological surveys have been completed within the southern portion of TA B-82 and along the western boundary of TA B-71 along both branches of Turtle Creek. TA B-71 contains 640 acres of historic high probability areas dispersed widely across the range. There are also 19 acres of prehistoric high probability in the southeast corner of the range. TA B-82 contains 381 acres of historic high probability terrain dispersed across the range (CRIMS, 2010).

Within both test areas, only one site (8OK1101) considered eligible for listing on the NRHP is situated along the northwestern edge of TA B-71. This site is a dense historic homestead artifact scatter which possesses excellent integrity. None of these sites or high probability areas occurs near A/S testing targets; bomb craters observed on TA B-82 were located in the center part of the test area away from areas of high cultural resource probability (CRIMS, 2010).

Protected cultural resources are found outside of the boundaries of TAs B-71 and B-82 (over 0.5 mile from the center of TA B-82, and about 0.25 to 1 mile from static ground test areas on TA B-71). While the possibility exists that an errant munition could land in one of these areas, the chance of striking a buried cultural resource would be very remote.

All of these areas are located along the boundaries of the test areas. The major testing areas on TAs B-71 and B-82, where the majority of mission activity occurs, have been determined to be low probability for the occurrence of cultural resources. Eglin 96 CEG/CEVSH recognizes that safety concerns override the need to survey within the boundaries of test areas that have the potential to contain UXO or present other serious hazards. A formal assessment of all of the test areas is currently being planned by Eglin Cultural Resources Management (CRM) personnel in consultation with the State Historic Preservation Officer to identify contaminated and hazardous areas and release them from Section 106 consideration until such a time when safety concerns are cleared. The need for surveys as a result of specific undertakings will be examined on a case-by-case basis.

3.6 AIR QUALITY

3.6.1 Definition

Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. The levels of pollutants are generally expressed on a concentration basis in units of parts per million (ppm) or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

The baseline standards for pollutant concentrations are the National Ambient Air Quality Standards (NAAQS) and state air quality standards (Table 3-4). These standards represent the maximum allowable atmospheric concentration that may occur and still protect public health and welfare. Further discussion of the NAAQS and state air quality standards are included in Appendix C, *Air Quality*. Based on measured ambient air pollutant concentrations, the USEPA designates whether areas of the United States meet the NAAQS. Those areas demonstrating compliance with the NAAQS are considered “attainment” areas, while those that do not demonstrate compliance are known as “nonattainment” areas. Those areas that cannot be classified on the basis of available information for a particular pollutant are “unclassifiable” and are treated as attainment areas until proven otherwise.

Table 3-4. National Ambient Air Quality Standards (NAAQS)

Time Period	NAAQS Standards ($\mu\text{g}/\text{m}^3$)			
	CO	NO _x	PM	SO _x
Annual (Primary)		100	50	80
24-hr Avg (Primary)			150	365
8-hr Avg (Primary)	10,000			
3-hr (Secondary)				1,300
1-hr Avg (Primary)	40,000			

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter; Avg = average; CO = carbon monoxide; hr = hour; NO_x = nitrogen oxides; PM = particulate matter; SO_x = sulfur oxides

3.6.2 Region of Influence and Existing Conditions

An air emissions inventory qualitatively and quantitatively describes the amount of emissions from a facility or within an area. Emissions inventories are designed to locate pollution sources, define the type and size of the sources, characterize emissions from each source, and estimate total mass emissions generated over a period of time, normally a year. These annual rates are typically represented in tons per year. Inventory data establishes relative contributions to air pollution concerns by classifying sources and aircraft operations.

For comparison purposes, Table 3-5 presents the USEPA’s 2002 National Emissions Inventory (NEI) data for Okaloosa County (USEPA, 2002). The county data includes emissions data from point sources, area sources, and mobile sources. Point sources are stationary sources that can be identified by name and by location. Area sources are point sources whose emissions are too small to track individually, such as a home or small office building, or a diffuse stationary source, such as wildfires or agricultural tilling. Mobile sources are any kind of vehicle or equipment with gasoline or diesel engine, an airplane, or a ship. Two types of mobile sources are considered: on-road and non-road. On-road mobile sources consist of vehicles such as cars, light trucks, heavy trucks, buses, engines, and motorcycles. Non-road sources are aircraft, locomotives, diesel and gasoline boats and ships, personal watercraft, lawn and garden equipment, agricultural and construction equipment, and recreational vehicles (USEPA, 2005).

Table 3-5. Baseline Emissions Inventory for Okaloosa County

Source Type	Emissions (tons/year)				
	CO	NO _x	PM	SO _x	VOCs
Area Sources	1,867	281	8,397	462	4,527
Non-Road Mobile	16,150	1,099	162	109	1,897
On-Road Mobile	45,228	5,703	153	256	3,829
Point Sources	28	49	24	12	79
Total	63,273	7,132	8,736	839	10,332

Source: USEPA, 2002

CO = carbon monoxide; NO_x = nitrogen oxides; PM = particulate matter; SO_x = sulfur oxides; VOCs = volatile organic compounds

In order to evaluate air emissions and their impact on the overall ROI, the emissions associated with the project activities were compared to the total emissions on a pollutant-by-pollutant basis for the ROI's 2002 NEI data. Potential impacts to air quality are identified as the total emissions of any pollutant that equals 10 percent or more of the ROI's emissions for that specific pollutant. The 10 percent criterion approach is used in the USEPA's General Conformity Rule as an indicator for impact analysis for nonattainment and maintenance areas. According to the USEPA's General Conformity Rule in 40 CFR Part 51, Subpart W, any proposed federal action that has the potential to cause violations in an NAAQS nonattainment or maintenance area must undergo a conformity analysis. A conformity analysis is not required as the proposed action occurs within an attainment area but is used to provide consistency and a conservative approach. Emissions from activities on TAs B-71 and B-82 would also be compared to the federal NAAQS.

3.7 NOISE

3.7.1 Definition

Noise is defined as any unwanted sound. Defining characteristics of noise include sound level (amplitude), frequency (pitch), and duration. Each of these characteristics plays a role in determining the intrusiveness and level of impact of the noise on a noise receptor. The term *noise receptor* is used in this document to mean any person, animal, or object that hears or is affected by noise.

Sound levels are measured on a logarithmic dB scale, reflecting the relative way in which differences in sound energy levels are perceived. A sound level that is 10 dB higher than another would normally be perceived as twice as loud, while a sound level that is 20 dB higher than another would be perceived as four times as loud. Under laboratory conditions, a person with normal hearing can detect a change in sound level as small as 1 dB. Under most nonlaboratory conditions, the people will notice changes in sound level of approximately 3 dB.

Sound measurement may be further refined through the use of frequency "weighting." A typical healthy human can detect sounds that range in frequency from about 20 hertz (Hz) to 20,000 Hz (Federal Interagency Committee on Noise [FICON], 1992); however, all sounds throughout this range are not heard equally well. In "A-weighted" measurements, the frequencies in the 1,000- to 4,000-Hz range are emphasized because these are the frequencies to which human

hearing is most sensitive. Sound level measurements weighted in this way are termed *A-weighted decibels*. In the case of sonic booms, blast noise, and other impulsive “booming” noises, sound is felt as well as heard. With these types of noise, overpressure may be considered more annoying than the sound itself. For this reason, impulsive sounds are measured using “C-weighting,” which does not attenuate the lower frequencies to the extent that A-weighting does. Sound level measurements weighted in this way are termed *C-weighted decibels* (dBC). Unless otherwise noted, all sound levels referenced in this REA can be assumed to be A-weighted.

Typically, the sound level at any given location changes constantly. For example, the sound level changes continuously when an aircraft flies by, starting at the ambient (background) level, increasing to a maximum when the aircraft passes closest to the receptor, and then decreasing to ambient levels when the aircraft flies into the distance. The term *Maximum Sound Level*, or “ L_{max} ” represents the sound level at its greatest level during an aircraft overflight when sound is at its maximum.

Because munition noise levels are so strongly influenced by meteorological conditions (e.g., winds), the peak noise level reaching a particular location after a particular noise event may vary significantly. The metric “Peak Noise Exceeded by 15 Percent of Firing Events,” or “ $PK_{15}(met)$,” accounts for weather-influenced statistical variation in received single-event peak noise levels; $PK_{15}(met)$ is the peak noise level, without frequency weighting, expected to be exceeded by 15 percent of all firing events. Because this value is based on probability and actual noise levels would vary higher and lower, it cannot be directly measured in the field. If multiple weapon types are fired from one location, or from multiple firing locations, the reported $PK_{15}(met)$ level would be based on the loudest weapon type at the closest location. The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) recommends this metric as a supplement to time-averaged noise levels when discussing impulsive noise (USACHPPM, 2005).

Because both the duration and frequency of noise events also play a role in determining overall noise impact, several metrics are used that account for these factors. Each metric discussed below is used in the assessment of noise impacts in this REA.

Sound Exposure Level (SEL) accounts for both the maximum sound level and the length of time a sound lasts. SEL does not directly represent the sound level heard at any given time, rather, it provides a measure of the total sound exposure for an entire event compressed into one second. This metric is useful for comparing fast-moving and slow-moving aircraft and is a good predictor of several noise impacts, including sleep disturbance and speech interference.

Day-Night Average Sound Level (DNL) represents aircraft noise level averaged over a 24-hour period, with a 10 dB penalty to flights occurring between 10:00 PM and 7:00 AM to account for the added intrusiveness of noise during these hours. It is important to recognize that the DNL metric does not represent the noise heard at any single point in time, but rather a weighted average level of noise events that occur over the course of a day. The DNL metric has been endorsed by several federal agencies as being the best descriptor of general noise conditions in the vicinity of airfields (USEPA, 1974; Federal Interagency Committee on Urban Noise [FICUN], 1980).

C-weighted Day-Night Sound Level (CDNL) is the 24-hour day-night averaged C-weighted sound level computed for areas subjected to sonic booms and blasts from high explosives. Use of the C-weighted scale accounts for the dominance of low-frequency components of these types of sounds.

Onset-Rate Adjusted Monthly Day–Night Average Sound Level is the measure used for subsonic aircraft noise in military airspace (ranges, military training routes, military operating areas, or warning areas). This metric accounts for the fact that when military aircraft fly low and fast, the sound can rise from the ambient level to its maximum very quickly. Known as an onset rate, this effect can make noise seem louder due to added “startle” effects. Penalties of up to 11 dB are added to account for this onset-rate.

3.7.2 Effects of Noise

Annoyance, speech interference, sleep interference, human health impacts, structural damage, and wildlife impacts have all been associated with noise. In this document, the “Noise” section of each chapter addresses general noise impacts on humans and structures, while subsequent sections discuss the impacts of noise on land use, environmental justice, biological resources, and cultural resources.

Annoyance is the most common effect of aircraft noise on humans. Aircraft noise often interferes with activities such as conversation, watching television, using a telephone, listening to the radio, and sleeping. This interference often contributes to individuals becoming annoyed. Whether or not an individual becomes annoyed by a particular noise is highly dependent on emotional and situational variables of the listener as well as the physical properties of the noise (Federal Aviation Administration [FAA], 1985). However, when assessed over long periods of time and with large groups of people, a strong correlation exists between the percentage of people highly annoyed by noise and the time-averaged noise exposure level in an area (Schultz, 1978; Finegold et al., 1994). This finding is based on surveys of groups of people exposed to various intensities of transportation noise. A generalized categorization of noise-induced annoyance can be found in Table 3-6. As discussed earlier in this section, DNL (A-weighted) is used to assess noise for which audible sound is the major concern (e.g., subsonic aircraft noise, small arms fire); CDNL (C-weighted) is used to assess noise in which vibration and low-frequency components are a major concern (e.g., sonic booms, high-explosive munition noise).

Table 3-6. Relationship Between Noise Level and Percent of Population Highly Annoyed

Criteria	Noise Level		
A-weighted average noise levels (continuous noise)	< 65 dB	65–75 dB	> 75 dB
C-weighted average noise levels (impulsive noise)	< 62 dBC	62–70 dBC	>70 dBC
Unweighted peak noise levels (small arms noise)	< 87 dBP	87-104 dBP	>104 dBP
	Percent of Population Highly Annoyed		
	< 15%	15%–39%	>39%

Source: USACHPPM, 2005; U.S. Army, 1997

< = less than; > = greater than; dB = decibels; dBC = C-weighted decibels; dBP = P-weighted decibels

Note: The primary noise metric used by the U.S. Army to describe small arms noise is PK₁₅(met)

The USEPA has recommended that the noise level in sleeping areas be less than 45 dB DNL (USEPA, 1974). As modern homes typically provide an exterior-interior noise level reduction of greater than 20 dB (U.S. Navy, 2005), residential areas in areas where noise is higher than 65 dB DNL are assumed to not meet this recommendation. Studies indicate a tendency for humans to habituate to regularly occurring nighttime noise over time, eventually reducing susceptibility to noise-induced sleep disturbance (Fidell et al., 1995; Pearsons et al., 1995; Kryter, 1984).

The USEPA recommends that, to protect public health with an adequate margin of safety, exterior noise levels should not exceed 55 dB DNL and interior noise levels should not exceed 45 dB DNL in noise-sensitive locations (USEPA, 1974). The Federal Interagency Committee on Urban Noise took these recommendations into consideration when developing its recommendations on compatibility of land uses with noise (FICUN, 1980). These recommendations have been adopted, with minor modifications, by the DoD (DoD Instruction 4165.57).

Noise is generally viewed as being one of a number of general biological stressors. Some studies have indicated that excessive exposure to intense noise might contribute to the development and aggravation of stress-related conditions such as high blood pressure, coronary disease, ulcers, colitis, and migraine headaches. Other studies have found no correlation between noise and various health conditions. Non-auditory health effects of noise are not well established at this time, but are likely only experienced at extremely high noise levels (USEPA, 1981).

A considerable amount of data on noise-related hearing loss has been collected and analyzed. For example, it has been established that 8 hours of continuous exposure to 85 dB increases the risk for potential permanent hearing loss over a 40-year period (USEPA, 1974). The National Academy of Sciences Committee on Hearing, Bioacoustics, and Biomechanics (CHABA) identified 75 dB DNL as the minimum level at which hearing loss may occur (CHABA, 1977); however, it is important to note that CHABA assumed long-term exposure (40 years) before hearing loss would occur. The U.S. Army has established a peak noise level of 140 dB as the threshold above which a temporary threshold shift (measured as increase in lowest level at which a sound is audible) may occur (USACHPPM, 2005).

Sonic booms and other impulsive noises have the potential to damage structures in addition to causing annoyance. The probability of damage has been linked to the peak overpressure of the boom. At a peak, unweighted noise level of 128 dB, the probability of a window in good condition breaking ranges from 1 in 100,000 to 1 in 100 million, depending on the type of glass and other situation-specific factors (Haber and Nakaki, 1989). The probability of breakage increases dramatically if the window is cracked before the impulsive noise occurs. The probability of damage to plaster at this same overpressure ranges from 1 in 1,000 to 1 in 10 million depending on the strength of the wall, as quantified by static failure pressure in pounds per square foot. Plaster failure may also occur as a result of sonic booms. Both glass and plaster failure probabilities are highly dependent on the condition of the structure at the time of the overpressure event.

3.7.3 Existing Noise Environment

Ambient noise is the combination of all sounds, near and far, at a particular location, excluding the sound source of interest, such as a mission activity. Natural wind, wildlife (for example, birds), aircraft, and vehicular traffic are primary contributors to the ambient noise environment at TAs B-71 and B-82. Vehicles associated with nearby highways and aircraft operating in the vicinity also contribute to the daily noise environment. Ambient noise is an important consideration when determining potential impact from an action. Generally, USEPA and Air Force studies predict that noise from a given sound source that raises the average noise level 5 dB above ambient levels is intrusive and will likely generate widespread complaints. For noise levels over 20 dB above ambient levels, a more negative reaction may be expected (U.S. Army, 2007).

Potential receptors are located in Fort Walton Beach which is south of the test areas, located approximately 3.5 miles from TA B-71 and 4.5 miles from TA B-82 at the closest points. Noise generated by TAs B-71 and B-82 missions may affect residential areas in Fort Walton Beach. The primary sensitive species of concern is the RCW which is discussed under Biological Resources, Sensitive Species.

3.8 SAFETY

The existing safety environment encompasses risk to public health and, with respect to training activities, risk to the health of military personnel, and those measures designed to minimize that risk. For actions occurring on military property with inherent safety risks, procedures are in place that minimize or altogether eliminate risks to the public. Such measures include the designation of areas as “restricted” or “closed” to the public, either permanently or temporarily. Such closures are driven by the dimensions of the “safety footprint” of a particular action that may have potentially harmful noise, blast, or other effects, or by the existence of unexploded ordnance from historical missions.

This section presents information concerning the existing range safety conditions at Eglin AFB. It includes a discussion of the safety regulations and process, safety organizations and responsibilities, and other safety procedures.

3.8.1 Regulatory and Management Overview

This section discusses the regulations, policies, and management protocols in place at Eglin AFB for range safety that impact TA B-71 and TA B-82 use. The primary regulations that establish relevant safety policy and define requirements and procedures for conducting tests on Eglin AFB and areas under its jurisdiction are found in AAC Instruction 91-201, *Test Safety Review Process*. This guidance is implemented by the AAC Range Safety Office and supporting organizations. The Test Safety Review Process described in AAC Instruction 91-201 implements the Operational Risk Management (ORM) process, as specified in AFI 90-901 for all

AAC test programs, and reflects the practical application of ORM as outlined in Air Force Pamphlet 90-902, *ORM Guidelines and Tools*.

The steps in the ORM process, as they relate to the Test Safety Review Process are:

- (1) **Identify the hazards.** Personnel involved with the test or activity act as a team to identify all potential hazards.
- (2) **Assess the potential risk.** Assess the probability and severity of loss from exposure to the identified hazard.
- (3) **Analyze risk control measures.** Investigate specific strategies and tools that reduce, mitigate, or eliminate the risk.
- (4) **Make control decisions.** Approve the best risk control or combination of controls based on the analysis of overall costs and benefits.
- (5) **Implement risk controls.** Once procedures to minimize identified hazards have been determined and approved at the appropriate level, those procedures are implemented during the test.
- (6) **Supervise and review.** Continue the ORM process throughout the accomplishment of every test program.

This instruction affects all test operations that are conducted under a 46 TW Test Directive. It includes ground-training activities involving personnel, aircraft, equipment, or airspace and applies to system program managers, program engineers, test engineers, range safety engineers, and aircrews that are responsible for incorporating safety planning and review into the conduct of test and training programs. Safety procedures associated with routine training operations are implemented through the individual organization, based on its specific training protocols/guidance.

A number of standard safety procedures exist to ensure limited public access to affected training areas during test implementation. These procedures require every practical effort to keep the designated training areas clear of all nonparticipating persons and vehicles.

Large portions of Eglin AFB are closed to public use, which facilitates range clearance operations. Depending on the type of training being conducted, contingency personnel may stand by in case of emergencies (U.S. Air Force, 2003a).

3.8.2 Unexploded Ordnance

Unexploded ordnance is defined as any munition device containing explosive material (i.e., live) that did not detonate upon impact with the surface but still has the potential to detonate; UXO is a potential problem across much of the Eglin Range Complex as a result of past mission activities. Eglin AFB has been testing munitions for over 60 years. During its long history, a vast number of different munition items have been expended throughout the Range as part of routine training and special testing activities. While UXO is an unintended but unavoidable consequence of any operation involving energetic material, only recently has the Air Force published standards for munition residue maintenance, remediation, and documentation.

Eglin has conducted an archive search in order to document the locations of formerly used ranges but has yet to conduct any basewide assessment of UXO contamination suitable to support an analysis of risk to training units. Previous informal analyses have centered on identifying areas with low enough risk to allow public recreation or to outgrant nonexcess real property. Currently, the AAC Directorate of Safety office handles requests on a case-by-case basis and controls the risk by limiting the type, location, or frequency of the requested action based on an informal risk assessment using local historical knowledge, the USACE Archive Search Report, and the Eglin Reservation Explosives Contamination study from July 1976.

Some areas of Eglin AFB have been classified as clean and do not have access restrictions. These areas either have never been used for munitions and/or the near surface has been checked for the presence of UXO. However, much of the range is considered potentially contaminated with UXO that may have resulted from historical activities (U.S. Air Force, 1998). TAs B-71 and B-82 are known to have been used for munition testing and are considered likely to be contaminated with UXO, therefore, TAs B-71 and B-82 are permanently closed to public access (Figure 3-8).

3.8.3 Restricted Access

Restricted access pertains to the temporary closure of areas on Eglin AFB because of mission activities. The purpose of restricting access to the public during these times is to ensure their safety while maintaining mission integrity. Receptors potentially impacted would include the military and the public desiring to use recreational areas. Guidance for restricted access is utilized to coordinate public and military use of land within the Eglin AFB Range. Range areas in use are closed to all forms of public recreation. Areas permanently closed to the public are shown in (Figure 3-8). Some military missions may require certain areas to be closed to the public for various periods of time. Recreational access information is available on a daily basis by calling the Base Information Line, (850) 882-1110.

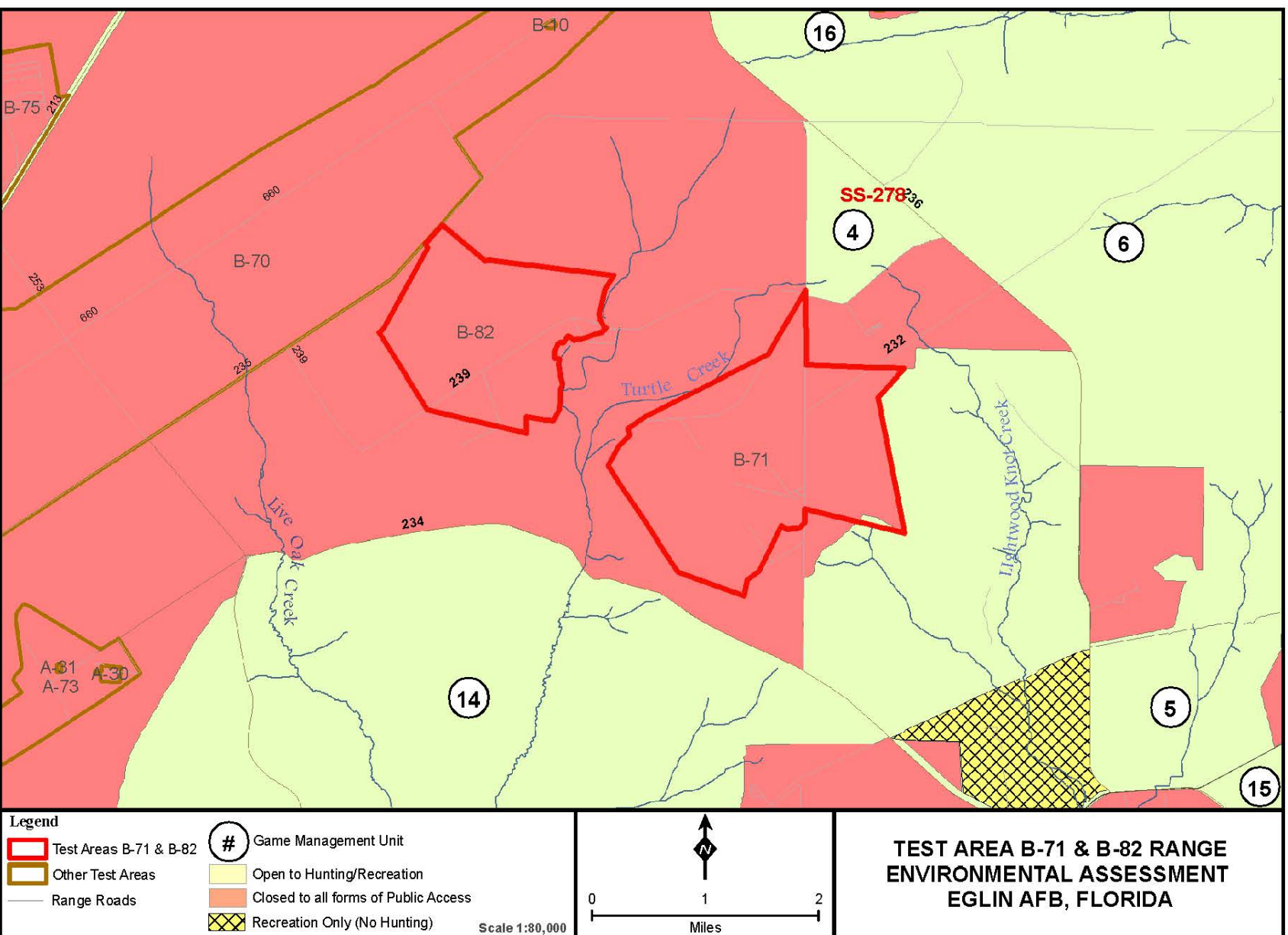


Figure 3-8. Restricted Access, Land Use, and Recreation at and around Test Areas B-71 and B-82
 10/18/10 Test Areas B-71 and B-82 Range Environmental Assessment, Revision 1
 Eglin Air Force Base, Florida
 Final
 Page 3-29

3.9 LAND USE

Land use generally refers to human management and use of land. At TAs B-71 and B-82, the current land uses consist of only military testing and training. Land use management and planning is discussed in the EAFB Instruction 13-212, which is mandated by AFI 13-212 “Range Planning,” and is the fundamental guide to military mission activities on the Eglin Range Complex (USAF, 2007b). Nearby land use also includes recreational and natural resources management, which is discussed in detail in the *Integrated Natural Resources Management Plan* (U.S. Air Force, 2007c).

Eglin has 465,693 acres of land range with 50 land test areas in Okaloosa, Santa Rosa, and Walton Counties and a small section in Gulf County. Approximately 14,000 acres are improved, 46,000 acres are semi-improved, and 405,000 acres are unimproved. Eglin manages the Joint Gulf Range Complex, a complex that has over 120,000 square miles of overland and overwater airspace. Management of adjacent land and water areas provide Eglin AFB a sea-to-land transition area necessary for modern weapons system research, development, testing, and evaluation. The armed services also use Eglin land and water ranges to train.

Existing Conditions

Test Areas B-71 and B-82 are utilized for military testing and training activities and are, therefore, closed to the public. Recreational areas are only located within interstitial areas on Eglin and not within the boundaries of the test areas (Figure 3-8); however, at times military related activities can overlap with other land uses, including recreation.

There are approximately 280,000 acres of land open for outdoor recreation (Johnson, 2010). Public recreation on Eglin is permitted during daylight hours only, with the exception of approved campsites after sunset. Outdoor activities include hunting, fishing, hiking, and camping. The total number of recreational permits sold for fishing, camping, and recreation use on Eglin AFB is available (Table 3-7); however, the number on the frequency of use or the specific areas where permit holders visit is not available (Johnson, 2010).

Table 3-7. Total Number of Recreational Permits Sold at Eglin AFB, FY2009

Activity	Number of Permits
Hunting	5,725
Fishing	5,207
Camping	614
Recreational	5,786
Total	17,332

Source: Johnson, 2010

There are 15 management units on Eglin AFB, each having its own regulations associated with seasons, mission activities, and access to the public and DoD-affiliated persons. The closest management units to TAs B-71 and B-82 are management units 4, 16, 6, and 14. Several parts of TA B-71 are adjacent to management unit 4. Management units 16 and 6 are within 4 miles

east of the TAs while management unit 14 is south and southwest of TAs B-82 and B-71. These management areas are open to hunting and recreation activities. All persons that engage in outdoor recreational activities are required to adhere to applicable Eglin AFB, federal, and state laws, rules, and regulations. General regulations are in place that address prohibited actions; for example, disturbing or removing any government property from the Eglin Reservation is prohibited. Entry into both “closed” areas is prohibited unless the commander of Eglin AFB has granted special permission. Areas designated as “seasonally closed” are typically closed except during hunting season and areas designated as “open” are available for all types of outdoor recreation. Annual rules, regulations, permits and maps for recreational activities can be obtained from Natural Resources Section (96 CEG/CEVSN) at Eglin AFB.

3.10 SOCIOECONOMIC RESOURCES

This section discusses the socioeconomic resources that have the potential to be impacted by activities occurring on and surrounding TAs B-71 and B-82 at Eglin AFB. The primary issues of concern include the disproportionate impact of noise from testing and training activities occurring on the test areas to environmental justice concern areas, as well as to areas containing a high concentration of children.

3.10.1 Environmental Justice

In 1994, EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations (Environmental Justice)*, was issued to focus the attention of federal agencies on human health and environmental conditions in minority populations and low-income populations. The EO was established to ensure that disproportionately high and adverse human health or environmental effects of federal actions on these populations are identified and addressed. The environmental justice analysis addresses the characteristics of race, ethnicity, and poverty status of populations residing in areas potentially affected by the proposed federal action. The purpose of this analysis is to identify disproportionate human health and safety and environmental impacts on minorities and low-income communities and to identify appropriate alternatives.

The DoD Strategy on Environmental Justice was adopted on 24 March 1995. It includes a summary report, strategy on environmental justice, and implementation plan, and states that the DoD will use NEPA as the primary mechanism to implement the provisions of EO 12898. Air Force Instruction 32-7061, 1995, *The Environmental Impact Analysis Process*, addresses the need for consideration of environmental justice issues in the impact analysis process. Areas of concern for Environmental Justice in relation to TAs B-71 and B-82 are given in Figure 3-9.

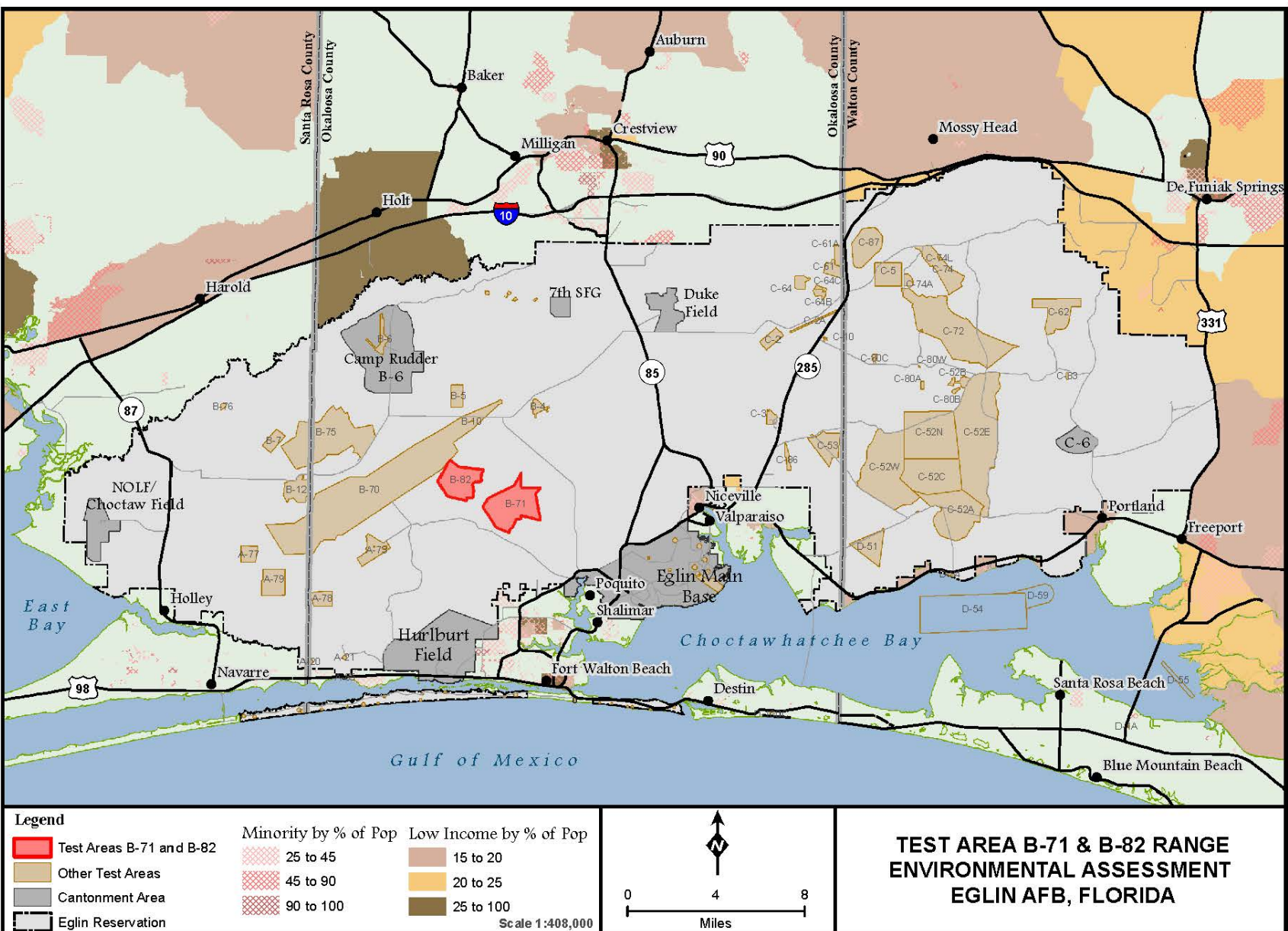


Figure 3-9. Communities With High Minority and Low-Income Populations

10/18/10

Test Areas B-71 and B-82 Range Environmental Assessment, Revision 1

Page 3-32

Eglin Air Force Base, Florida

Final

For the purpose of this analysis, minority and low-income populations are defined as follows:

Minority Populations: All persons identified by the U.S. Census Bureau's Census of Population and Housing to be of Hispanic or Latino origin, regardless of race, plus non-Hispanic persons who are Black or African American, American Indian and Alaskan Native, Asian, Native Hawaiian and Other Pacific Islander, some other (i.e., non-White) race, or two or more races. For purposes of the analysis, the minority population is calculated by subtracting the number of persons who are White but not Hispanic, from the total population.

Low-Income Populations: All persons that fall within the statistical poverty thresholds published by the U.S. Census Bureau in the Current Population Survey are considered to be low-income. For the purposes of this analysis, low-income populations are defined as persons living below the poverty level (\$16,895 for a family of four with two children, adjusted based on household size and number of children), as reported in the 2000 Census. The 2000 Census asked people about their income in the previous calendar year; therefore, poverty estimates reported in the 2000 Census compare family income in 1999 with the corresponding 1999 poverty thresholds. If the total income for a family or unrelated individual falls below the relevant poverty threshold, then the family or unrelated individual is classified as being below the poverty level.

The percentage of low-income persons is calculated as the percentage of all persons for whom the Census Bureau determines poverty status, which is generally a slightly lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

3.10.2 Risks to Children

In 1997, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks (Protection of Children)*, was issued to identify and address issues that affect the protection of children. The EO states that "environmental health risks and safety risks mean risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breathe, the food we eat, the water we drink or use for concentrations of children occur in schools, community childcare facilities, and hospitals than in residential areas. The facilities that have the potential to be impacted by activities in the test areas at Eglin are shown in Figure 3-10.

3.10.3 Noise Complaints

People and physical structures that are potentially susceptible to noise effects from the activities conducted at TAs B-71 and B-82 are in communities surrounding the Eglin Reservation. In the past, the majority of noise complaints from military activities at Eglin AFB have generally come from Navarre. In recent years, a larger proportion of noise complaints have come from the city of Niceville. Table 3-8 shows the total number of complaints per city in 2008 and the actual number of complainants, and Table 3-9 provides examples of noise complaints received during 2008 from activities performed on the Eglin Complex.



Table 3-8. 2008 Noise Complainant Data per City

City	Total Number of Complaints	Total Number of Complainants
Crestview	2	2
DeFuniak Springs	6	5
Destin	2	2
Eglin	1	1
Freeport	1	1
Fort Walton Beach	2	1
Laurel Hill	1	1
Mary Esther	2	1
Milton	2	2
Miramar Beach	2	2
Navarre	2	2
Niceville	33	7
Pensacola	1	1
Santa Rosa Beach	3	3
Seagrove Beach	2	2
Shalimar	1	1
Valparaiso	1	1

Source: Walsh, 2009

Note: Noise complaint data listed is not attributed to any specific test area or activity.

Table 3-9. Eglin AFB 2008 Noise Complaint Data by City and Type of Complaint

Location	Complaint	Number of Complaints
Crestview	Low Flying/Noise	1
Crestview	Explosion	1
DeFuniak Springs	Low Flying/Noise	2
DeFuniak Springs	Explosion	2
DeFuniak Springs	Sonic Boom	2
Destin	Explosion	2
Eglin	Noise	1
Freeport	Noise	1
Fort Walton Beach	Low Flying/Noise	2
Laurel Hill	Low Flying/Noise	1
Mary Esther	Explosion	2
Milton	Sonic Boom	1
Milton	Explosion	1
Miramar Beach	Explosion	2
Navarre	Sonic Boom	1
Navarre	Explosion	1
Niceville	Low Flying/Noise	22
Niceville	Explosion	7
Niceville	Sonic Boom	4
Pensacola	Explosion	1
Santa Rosa Beach	Explosion	1
Santa Rosa Beach	Low Flying/Noise	1
Santa Rosa Beach	Sonic Boom	1
Seagrove Beach	Explosion	1
Seagrove Beach	Sonic Boom	1
Shalimar	Low Flying/Noise	1
Valparaiso	Explosion	1

Source: Walsh, 2009

Note: Noise complaint data listed is not attributed to any specific test area or activity.

This page is intentionally blank.

4. ENVIRONMENTAL CONSEQUENCES

This chapter analyzes the potential impacts associated with TAs B-71 and B-82 test and training activities (described in Chapter 2) on the affected environment (described in Chapter 3). The analysis examines the potential impacts of each of the proposed alternatives on the following resource areas:

- Chemical Materials
- Soils
- Water Resources
- Biological Resources
- Cultural Resources
- Air Quality
- Noise
- Safety
- Socioeconomic Resources

4.1 CHEMICAL MATERIALS

The potential environmental impact of hazardous materials and waste were assessed as they pertain to debris from ground troop movement and chemical materials from ordnance for testing and training activities within TAs B-71 and B-82. Additionally, the transport, storage, use, and disposal of hazardous materials and waste associated with activities within TAs B-71 and B-82 should be coordinated with Eglin's Environmental Compliance Branch, Pollution Prevention Section and disposed of appropriately according to regulations and AAC Plan 32-5, *Hazardous Waste Management Plan*. AAC Plan 32-9, *Hazardous Materials Management*, describes how Eglin AFB complies with federal, state, Air Force, and DoD laws and instructions. These materials would be stored in the proper containers, employing secondary containment as necessary to prevent/limit accidental spills. All spills and accidental discharges of petroleum products, hazardous materials, or hazardous waste would be reported.

Eglin AFB has developed emergency response procedures and site-specific contingency plans for all hazardous materials locations. Procedures and responsibilities for responding to a hazardous material spill or other incidents are described in the Hazardous Waste Management Plan (U.S. Air Force, 2006a) and the Eglin AFB SPCC Plan (U.S. Air Force, 2005).

4.1.1 No Action Alternative

Debris

Debris, such as cartridges, shrapnel deposited from bombs and missiles, intact inert bombs, canisters from smokes, chaff, and flares, as well as litter and refuse from ground troop

movement, may be deposited from test and training activities. If these items are left in place and not properly disposed, packed out, or periodically cleared, the debris and refuse has the potential to cause adverse environmental impacts. AAC Plan 32-5 and AAC Plan 32-9 should be adhered to during training activities for recycling, hazardous materials management, and proper disposal of wastes.

Ordnance Use

Hazardous materials and solid waste, as they pertain to the analysis in this section, are the explosives and metals associated with the expenditure of ordnance on TAs B-71 and B-82. These materials may degrade the quality of soil or water, or may be toxic to plants, wildlife, or people. For the mission activities occurring on TAs B-71 and B-82, metals and explosives from bombs, missiles, guns, mines, small arms, smokes, chaff, and flares are the primary chemical materials of concern. Munitions and pyrotechnics use on TAs B-71 and B-82 has increased since the previous baseline, and in some cases has exceeded the levels authorized in the *2003 Test Areas B-71 and B-82 Programmatic Environmental Assessment* (U.S. Air Force, 2003). Under current practice, munition debris is recovered and/or removed from the ranges for the purpose of storage, reclamation, treatment, and disposal as solid waste. These practices are necessary for compliance with AFI 13-212, which requires the range to be cleared of munition debris on a regular basis.

Toxic Release Inventory-Data Delivery System

Quantification of chemical constituents in ordnance was determined using the Toxic Release Inventory-Data Delivery System (TRI-DDS) (DoD, 2010). The TRI-DDS is a tool that is a product of the EPCRA Workgroup and is intended to provide a consistent method to assess chemical releases and waste management data across the DoD. The EPCRA Workgroup supplies information for the DoD EPCRA TRI-reporting database for munition and range activities.

The TRI-DDS draws on both constituent information and emission factor data to determine the quantities of chemicals released from demilitarization (e.g., open burn/open detonation), live fire, and training activities. Calculations in the TRI-DDS begin with identifying and selecting or entering the specific munition item used. Munition items are identified in the TRI-DDS by DoD Identification Code, Navy Ammunition Logistics Code, National Stock Number, or common name-pick lists. The resulting TRI-DDS report lists the chemical constituents that compose each munition item. These quantities are used to determine quantities of chemicals emitted. Because it is assumed that all munition debris, inert, and duded munitions will be removed from the Range annually, this analysis addresses air emissions only from inert munition and blanks. It is assumed that emissions to the air from detonation will not only enter the air environment, but will also have the potential to settle back onto the soil and possibly be transported by water.

Expenditures

The TRI-DDS analysis included the chemical constituents in bombs, missiles, guns, mines, small arms, smokes, chaff, and flares used for testing and training within TAs B-71 and B-82. Numerous types of munitions are used on TAs B-71 and B-82; however, for the purposes of

analysis, the items listed in Table 4-1 were used as surrogates, in some cases as representatives, and where constituent data was not available. Ordnance expenditures listed were provided by user groups, and maximum annual expendables for TAs B-71 and B-82 under the No Action Alternative are detailed in Chapter 2 (Table 2-1). (Note: Potential impacts from chemical releases to specific media [i.e., soil, water, air, biological resources] are discussed in each of those respective sections.)

The DoD's TRI-DDS website was used to determine constituent chemical emissions from the discharge of these representative munitions on TAs B-71 and B-82. Expenditures were analyzed on an annual basis. Although 33 toxic chemical constituents are listed in the output of the various munitions, only those totaling greater than or equal to one pound annually are listed in Table 4-1. This includes the six insoluble chemicals, which would be the most persistent in the environment.

No new TRI reporting thresholds would be exceeded by munition expenditures associated with the No Action Alternative.

Table 4-1. Munition-Related Residue Under No Action Alternative

Chemical	Quantity Released on TA B-71 (pounds)	Quantity Released on TA B-82 (pounds)
1,3-Butadiene	33	0
Benzene	194	1
Cyanide	1	0
Cyclohexane	67	0
Ethylbenzene	137	0
Ethylene	1	2
Hydrochloric acid	0	5
Lead	7	0
Toluene	298	0
n-Hexane	40	0

Source: DoD, 2010

4.1.2 Alternative 1

Debris

Under Alternative 1, training activities occurring at TAs B-71 and B-82 would increase significantly over the currently approved levels under the No Action Alternative. However, there would be no new types of training or expenditures and no new user groups. Management practices are in place that assure training areas will be scanned for debris and duded munition and that they would be removed. Any duded munition or UXO would be flagged and removed according to standard procedures. Therefore, no impacts are expected due to debris associated with the training activities under Alternative 1.

Ordnance Use

Ordnance use would increase under Alternative 1. Ordnance expenditures were provided by user groups, and maximum annual expendables for TAs B-71 and B-82 under Alternatives 1 and 2 are

detailed in Chapter 2 (Table 2-1). (Note: Potential impacts from chemical releases to specific media [i.e., soil, water, air, biological resources] are discussed in each of those respective sections.)

The same methodology used for Table 4-1 was used to determine the chemical emissions associated with ordnance expenditure as a result of testing and training on TAs B-71 and B-82. Table 4-2 shows that the chemical output under Alternative 1 would be lower than under the No Action Alternative, specifically for the aromatic hydrocarbon emissions due to open burning of JP-8. It was calculated that the chemical load from all munitions would be distributed over 2,300 and 1,438 acres for TAs B-71 and B-82, respectively. Therefore, the overall concentration of any chemical at any given location would be minute. Additionally, because lead expenditures already require TRI reporting, no new TRI thresholds would be exceeded under Alternative 1.

Table 4-2. Munition-Related Residue Under Alternative 1

Chemical	Quantity Released on TA B-71 (pounds)	Quantity Released on B-82 (pounds)
1,3-Butadiene	46	0
Barium	1	0
Benzene	273	0
Cyanide	1	0
Cyclohexane	95	0
Ethylbenzene	193	0
Ethylene	1	0
Hydrochloric acid	36	1
Hydrogen fluoride	0	1
Lead	11	0
Toluene	420	0
n-Hexane	56	0

Source: DoD, 2010

4.1.3 Alternative 2

Debris

Under Alternative 2, testing and training activities occurring at TAs B-71 and B-82 would increase 300 percent over the levels analyzed under Alternative 1. However, management practices would remain in place that assure training areas will be scanned for debris and dudged munition and that they would be removed. Any dudged munition or UXO would be flagged and removed according to standard procedures.

Therefore, no impacts are expected due to debris associated with the training activities under Alternative 2.

Ordnance Use

Under Alternative 2, ordnance use would increase a great deal from the levels analyzed in Alternative 1. Ordnance expenditures were provided by user groups, and maximum annual

expendables for TAs B-71 and B-82 under Alternatives 1 and 2 are detailed in Chapter 2 (Table 2-1). (Note: Potential impacts from chemical releases to specific media [i.e., soil, water, air, biological resources] are discussed in each of those respective sections.)

The same methodology was used to determine the chemical emissions associated with ordnance expenditure as a result of training and testing at TAs B-71 and B-82. Chemical emissions under Alternative 2 are shown in Table 4-3. Increases are approximately threefold over Alternative 1. Again, since these emissions are shown on an annual basis and the affected area is so large, the concentration at any time at any given location would be insignificant. No new TRI thresholds would be exceeded under Alternative 2.

Table 4-3. Munition-Related Residue Under Alternative 2

Chemical	Quantity Released on TA B-71 (pounds)	Quantity Released on TA B-82 (pounds)
1,3-Butadiene	92	0
Ammonia	0	1
Antimony	1	0
Barium	2	0
Benzene	547	0
Chlorine	1	0
Cyanide	3	0
Cyclohexane	189	0
Ethylbenzene	386	0
Ethylene	2	0
Hydrochloric acid	144	3
Hydrogen fluoride	0	2
Lead	45	0
Toluene	841	0
n-Hexane	112	0

Source: DoD, 2010

4.2 SOILS

Testing and training activities on TAs B-71 and B-82 may affect soils by deposition of munition residue and erosion. Potential munition impacts to soils pertain to substances that can be released into the ground as a result of mission activities. Chemical substances absorbed into the soil may eventually be released into groundwater and surface waters. Under current practice, munition debris is recovered and/or removed from the ranges for the purpose of storage, reclamation, treatment, and disposal as solid waste. These practices are in accordance with AFI 13-212, which requires the range to be cleared of munition debris on a regular basis. Munition use, including bomb and small arms expenditures and associated ordnance retrieval, may initiate or accelerate erosion in sloped areas with reduced vegetative cover. The best management practices (BMPs) listed later in this chapter can substantially decrease erosion and chemical impacts to soils on the test areas.

4.2.1 No Action Alternative

Munition Residue

Potential impacts associated with munition residue pertain to chemical materials that can be released into the ground as a result of mission activities. Degradation of ordnance materials may produce chemical byproducts that, under certain concentrations, may become an environmental concern. Once chemical substances are absorbed into the soils, they may be subsequently transported to groundwater and surface waters, and therefore have the potential to affect water quality. The purpose of this analysis is to identify the primary chemical materials generated by mission expenditures and to assess the relationship between potential chemical material concentrations and environmental thresholds. Soil-deposited projectiles are the focus of this analysis.

Many of the metal and organic chemical material by-products deposited on the surface following the execution of mission activities on TAs B-71 and B-82 naturally occur in the environment at relatively low concentrations and are important to overall ecosystem function. However, there is the potential for mission by-products to accumulate in the soil at concentrations that may adversely impact biological receptors. For example, lead is a component of some types of explosive material and is of concern because, unlike organic materials, it is not easily destroyed and can be toxic to plants and animals.

When metals are introduced to the soil surface, downward transport does not occur to a great extent unless the metal retention capacity of the soil is overloaded or metal interaction with the associated organic waste matrix enhances mobility. Ultimately, the extent of vertical migration is primarily related to the soil solution and surface chemistry of the soil matrix. Metal by-products deposited on or within the soil during mission events could exist on one or all of the following conditions:

- Dissolved in the soil solution
- Occupy exchange sites on inorganic soil constituents
- Specifically adsorbed on inorganic soil constituents
- Associated with insoluble soil organic matter
- Precipitated as pure or mixed solids
- Present in the structure of secondary minerals
- Present in the structure of primary mineral

Metal immobilization prevents leaching into groundwater systems by mechanisms of absorption and precipitation. Metal absorption by soil is related to properties of both the metal and the soil, such as clay content, organic content, texture, permeability, pH, particle size, surface area, ion exchange capacity, water content, and temperature. The soil components that are most associated with immobilization of metals are clay, iron oxides, and organic matter. The soil particle surface characteristics thought to be most important to absorption are surface area and

cation exchange capacity. Immobilized metals in surface soils that are prevented from entering groundwater can be readily transported to receiving waterways by soil erosion.

The 2003 PEA for TAs B-71 and B-82 (U.S. Air Force, 2003) identified the activities having potential for environmental effects through chemical material deposition as A/S testing, static ground testing, and S/S testing. A/S testing involves the expenditure of live bombs. Bombs may be used on either test area, but under the No Action Alternative, the majority will be dropped on TA B-82. Therefore, bomb use on TA B-82 will be analyzed and the analysis is considered conservatively representative of both test areas. The chemical component of primary interest associated with bomb expenditures is the explosive tritonal. MK-82 and MK-84 bombs are associated with the No Action Alternative; the MK-82 contains 192 pounds of tritonal, while the MK-84 contains 945 pounds. Subsequent analyses in this section assume an equal number of each bomb type would be employed and, therefore, use the averaged weight of 568.5 pounds of tritonal. Explosive byproducts of tritonal include aluminum, copper, lead, and barium. The amount of these byproducts per pound of tritonal is shown in (Table 4-4).

Pollutant levels have not been measured in soils on the test areas (U.S. Air Force, 2003). Therefore, potential impacts to soil due to munition residue are analyzed by comparing the estimated explosive by-product concentration levels with regulatory standards (State of Florida and USEPA Region III Risk-Based Criteria). An estimated soil concentration is calculated by dividing the weight of by-products by the weight of the affected volume of soil. The 2003 PEA assumed an affected area of 72,900 square meters of soil and a corresponding volume of 1,840 cubic meters (m³). Soil density at the test areas is unknown but was estimated in the 2003 PEA as 1.7 grams per cubic centimeter, resulting in a total weight of 3,128,000 kilograms (kg).

Under the No Action Alternative, 240 live bombs would be expended. The resulting soil concentration of aluminum is calculated as 0.1330 milligrams of aluminum per kg of soil (mg/kg), as shown in the following example. Concentrations of the other explosive byproducts would be calculated by the same method. The results are shown in (Table 4-4).

Total weight of aluminum: (240 bombs) x (568.5 pounds of tritonal per bomb) x (0.00672 pounds of aluminum per pound of tritonal) = 916.9 pounds of aluminum = 415.9 kg of aluminum.

Soil concentration: (415.9 kg of aluminum) / (3, 128,000 kg soil) = 1.3296×10^{-4} kg/kg, or 0.1330 mg/kg.

Table 4-4. MK-82 and MK-84 Bomb Explosive Byproduct Soil Concentrations

Tritonal Byproduct	Pounds of Byproduct per Pound of Tritonal	Byproduct Soil Concentration (mg/kg)	Regulatory Criteria (mg/kg)
Aluminum	0.00672	0.1330	75,000
Copper	0.00136	0.0269	3,000
Lead	0.0000274	0.0005	500
Barium	0.000184	0.0036	5,200

From U.S. Air Force, 2003

The results show that explosive by-product soil concentrations due to MK-82 and MK-84 bomb expenditure would be substantially below regulatory concentrations. Therefore, no significant impacts to soil resources due to munition residue would result from A/S activities.

During static ground testing, munition “cook-off” tests are conducted, where JP-8 fuel is ignited in order to determine the point at which munitions will explode. Potassium compounds such as potassium carbonate and potassium sulfate are produced from the burning of black powder during these tests. Emission factors are not available for potassium compounds; however, given the amount of black powder (1,525 pounds) and percentage of potassium nitrate (74 percent) in black powder, a maximum of 770 pounds of potassium carbonate could be produced during testing (U.S. Air Force, 2003). Some of the potassium carbonate would be expected to settle onto nearby soils. The methodology used to calculate soil by-product concentrations due to A/S activities was used in the 2003 PEA to determine a soil concentration of 113 mg/kg of potassium carbonate resulting from static ground testing. Potassium is an important plant nutrient, and potassium carbonate and potassium sulfate are commonly used as agricultural fertilizers. Therefore, ash from black powder cook-off tests would increase the nutrient levels in soil around the test site, offering some benefit to vegetation. No harmful effects to the soil environment would occur. Except for carbon particles, which are inert, emissions from JP-8 fuel are gaseous and would not settle onto the soil, but would remain aloft and disperse.

S/S testing missions, which are conducted on TA B-71, may result in chemical byproducts being released into the soil. The 2003 PEA, of which the approved activities represents the No Action Alternative of this document, identified propellants as the primary source of chemical residue in the soil associated with S/S activities. The primary propellant used in S/S testing was HTPB/AL/AP. Chromium is the only particulate by-product of HTPB/AL/AP for which soil quality criteria or toxicity information was available. Using the methods of analysis provided for A/S activities, chromium is expected to be produced in insignificant amounts (Table 4-5); therefore, no significant impacts to soil resources due to munition residue would result from S/S activities.

Table 4-5. Propellant By-product Soil Concentrations

Tritonal Byproduct	Pounds of By-product per Pound of Tritonal	By-product Soil Concentration (mg/kg)	Regulatory Criteria (mg/kg)
Chromium	0.000048	0.0009	10

Source: U.S. Air Force, 2003

mg/kg = milligrams per kilograms

Erosion

Soil erosion is the process of detachment, suspension, translocation, and deposition of surface materials by water, wind, ice, or gravity. The rate of erosion in a given area can be accelerated by human activities. Erosion can introduce sediments and pollutants into terrestrial and aquatic environments, damage or destroy cultural resources, reduce recreation use and value of affected watersheds, and increase land management and operating costs. Eroded soil particles moved and deposited by a watercourse, which are known as sediment, can adversely alter water quality, habitats, and the hydrologic form and function of waterways and wetlands. Suspended sediment in waterways inhibits light penetration and photosynthesis and diminishes the aesthetic value of water bodies. Sediment deposition in waterways leads to premature filling of water bodies,

exertion of large oxygen demands on the water, burial of benthic organism aquatic habitats, and alteration of stream hydrology. Sediment deposition on other terrestrial systems can bury and kill vegetation and other organisms. Erosion and sedimentation can also introduce organic matter and nutrients, pesticides, metals, and other compounds into receiving ecosystems.

Erosion on TAs B-71 and B-82 that facilitates the transport of soil materials and other compounds beyond the boundaries of the test areas would be considered nonpoint source pollution. The CWA as amended in 1987, Section 319, placed special importance on the need to control nonpoint source pollution. The CWA states that nothing can be introduced into a stream or other water body which could potentially pollute the water, and that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner so as to enable the achievement of the nonpoint source goals of the CWA. Air Force Instruction 32-7041, *Water Quality Compliance* (Appendix A), stipulates that the Air Force maintain compliance with the CWA and other federal, local, and state environmental and water quality directives.

Mission activities (in addition to other activities such as timber projects) have contributed to soil disturbance and erosion throughout the Eglin Reservation. Most affected soils have slopes of less than five percent and belong to the Lakeland association. Erosion is usually more pronounced on steeper slopes cleared of vegetation. Severe erosion has occurred along the perimeter of TA B-71. Drainage patterns on TA B-71 are oriented toward West Branch, and the test area perimeter adjacent to this feature is eroding primarily due to the natural steepness of the slope leading to the creek. Some erosion is occurring on TA B-82 but appears to be confined to the test area. Erosion is most prevalent in the area near the clay grid. This area is sandy, sloped in places, and sparsely vegetated. Sediments appear to erode from roughly the center of the clay grid. Vegetation becomes thicker along the perimeter of TA B-82, and signs of erosion diminish at the perimeter. It is unknown whether eroded sediments are transported off of the test area.

Air-to-surface bombing activities are considered the most likely to contribute to erosion on TAs B-71 and B-82. In addition to soil disturbance caused by bomb expenditures, erosion could also result from vehicle and foot traffic associated with ordnance retrieval, and with ground troop activities. Under the No Action Alternative, nearly 400 live and inert bombs could be expended annually on the test areas; the majority would be MK-82 and MK-84 bombs. This level of activity, while moderate in comparison to other areas such as TA B-75, could contribute to increased erosion.

Management Requirements

The preceding analyses describe potential soil impacts on TAs B-72 and B-82 resulting from deposition of munition residues and erosion. Although munition use may affect soil quality by introducing metal residues, the resulting concentrations would not approach regulatory thresholds. A/S bombing activities could contribute to increased soil erosion. The severity of potential erosion impacts would be diminished by implementing management requirements identified in the 2003 PEA and the 2007 EBD. A comprehensive list of management requirements related to soil quality is provided in Section 2.5, including general requirements and those specific to soils. The most pertinent actions for this section, which would decrease impacts to soil quality, are as follows:

- All inert weapons, including practice bombs with spotting charge, on or near the surface must be recovered, removed, and destroyed.
- Wheeled vehicles should keep to existing trails/roads (described in individual test directives) unless there is special authority to use nonexistent trails/roads.
- During ground training, avoid ground-disturbing activities within 100 feet of streams and wetlands.

4.2.2 Alternative 1

Munition Residue

Activities potentially affecting soil resources were identified in the No Action Alternative (Section 4.2.1) as A/S testing, static ground testing, and S/S testing. The number of live bombs used during A/S testing would decrease under Alternative 1 to a maximum of 35 on TA B-71. Analysis under the No Action Alternative determined that the concentration of chemical residues due to live bomb expenditures would be orders of magnitude below regulatory thresholds. The number of expenditures decreases under Alternative 1; therefore, no significant impacts to soil resources due to munition residue would result from S/S activities. In addition, increases in static ground testing activities would not be expected to significantly impact soils.

Under Alternative 1, S/S testing activities would include the addition of small arms training on TA B-71. Small arms munition expenditures are considered to have more potential to affect soils than the propellant discussed in Section 4.2.1. Up to 51,795 small arms rounds may be expended annually under this alternative, including 5.56 mm, 7.62 mm, 9 mm, and .50 caliber rounds. This number is based on the assumptions that all rounds would be live (not inert training rounds). The distribution of these projectiles on the test area (e.g., multiple training sites versus a single training site) is unknown. For purposes of chemical analysis, the 7.62 mm round is considered representative of the small arms projectiles potentially expended. The brass (70 percent copper and 30 percent zinc) cartridge case of a 7.62 mm round encapsulates the propellant charge and supports the bullet projectile. The bullet projectile consists of two parts, a copper alloy clad steel metal jacket and a lead alloy core. The core of the ball is composed of a short steel forward section and a larger lead/antimony rear section. The metal jacket around the core is normally composed of brass (copper and zinc) or a ductile grade of malleable steel covered with a thin coating of copper.

There would be no significant impact to soils from the copper and zinc in bullet casings because the cases are typically removed from the site after missions are completed. However, copper and lead would be deposited in the soil due to entrance of the expended bullets. Based on analysis of potential small arms impacts at another test area (TA B-75), approximately 74 pounds of copper and 130 pounds of lead are deposited on the ground for every 10,000 bullets expended (U.S. Air Force, 2000). Therefore, approximately 383 pounds of copper and 673 pounds of lead could come in contact with soils on TA B-71 annually from small arms training. For comparison, 800 pounds of copper and 1,408 pounds of lead were analyzed for TA B-75, where it was concluded that all metal concentrations in the soil near small arms target berms were below Eglin background and USEPA risk-based concentrations.

The high usage of target sites on TA B-75, coupled with the relatively low concentrations of lead and copper in the soil samples, suggests that either the metals may become soluble in soil and migrate downward, or they are locked up in target berms as intact slugs. Lead and copper are generally stable in the environment, but under certain soil and climate conditions they can break down and become soluble in the soil. Once soluble, they become mobile and can be transported to groundwater. The availability of lead and copper is partly dependent on their rate of degradation in the soil, which, depending on specific soil chemistry and climate, ranges from a few years to hundreds of years.

It was theorized that the soil characteristics on TA B-75 could be conducive to the degradation of copper and lead projectiles, and that these substances could leach into the Surficial Aquifer system and flow laterally along groundwater gradients toward surface waters. However, the Eglin Installation Restoration Program determined that lead generally exhibits limited vertical migration when deposited in the soil on the Eglin Reservation. This suggests that lead degrades slowly in the Eglin soil environment and generally does not manifest itself in the soil or groundwater, particularly with increased distance from the point of origin (U.S. Air Force, 2000).

Erosion

Activities under Alternative 1 most likely to have potential to cause soil erosion include bombing activities associated with A/S training and small arms expenditures associated with S/S training. The total number of live and inert bombs expended would decrease from 400 to 74. Although the total number of bombs is less than the number under the No Action Alternative, the activities could contribute to erosion at the test areas. The total number of small arms munition expended, including 5.56-mm, 7.62-mm, 9-mm, and .50-caliber rounds, could approach 53,000 annually under Alternative 1. Although this activity, conducted at designated training areas, could contribute to erosion potential on sparsely vegetated slopes, the impact is expected to be minor. Adherence to the management practices identified below would reduce the erosion potential for all activities.

- Design vegetation control practices that minimize surface disturbance and create implementation strategies for increasing vegetative cover.
- Control the location and design of mission activities to avoid creating adverse slope shapes or gradients and/or reducing vegetative cover.
- Locate mission activities that result in surface disturbance away from slopes sensitive to erosion.
- Establish low-growing grassland communities on severely disturbed erosion response units.
- Design concave slope segments on newly constructed targets.
- Reduce the gradients of severely eroding slopes to the degree possible and revegetate.

4.2.3 Alternative 2

Munition Residue

Under Alternative 2, the greatest number of live bombs used during A/S testing annually would be 152 on TA B-71. Although this represents an increase compared to Alternative 1, the number is less than that analyzed under the No Action Alternative. Analysis under the No Action Alternative determined that the concentration of chemical residues due to live bomb expenditures would be orders of magnitude below regulatory thresholds. Therefore, no significant impacts to soil resources due to munition residue would result from S/S activities under Alternative 2. In addition, increases in static ground testing activities would not be expected to significantly impact soils.

Small arms expenditures would increase to a maximum of approximately 207,180 rounds annually. The resulting quantity of principal metals would be 1,533 pounds of copper and 2,693 pounds of lead on TA B-71. The distribution of this amount over possible multiple sites are unknown. These quantities represent an approximately four-fold increase over quantities described under Alternative 1. However, this increase is not likely to cause metal concentrations in the soil to approach USEPA risk-based concentrations. Given the apparent slow degradation rate of metals in Eglin soils and limited vertical migration, as evidenced by low concentrations in heavily used areas such as TA B-75 (U.S. Air Force, 2000), a four-fold increase in metal deposition would be unlikely to result in a corresponding four-fold increase in metal residue concentration. Even if such a scenario were to occur, the soil concentrations would not be expected to approach USEPA thresholds because they are currently orders of magnitude below the USEPA standards. For example, the USEPA copper concentration threshold was found to range from 969 to 44,000 times the concentrations measured in soils at frequently used target areas on TA B-75. Adherence to the management practices would reduce potential impacts due to munition residue.

Erosion

Activities under Alternative 2 considered likely to have potential to cause soil erosion include bombing activities associated with A/S training and small arms expenditures associated with S/S training. The total number of live and inert bombs expended would be 296 (compared to 400 under the No Action Alternative and 74 under Alternative 1). This activity could contribute to soil erosion at the test areas, particularly at sparsely vegetated slopes. The total number of small arms munitions expended would increase to approximately 207,000, which could also contribute to erosion potential. Adherence to management practices would reduce the erosion potential for all activities.

4.3 WATER RESOURCES

Water quality analysis focuses on the potential for chemicals to enter groundwater and surface waters, including wetlands, near TAs B-71 and B-82. Turtle Creek, West Branch, and smaller associated stream branches border the test areas, and small portions of the associated wetlands abut the test areas. Potential contaminant transport mechanisms include groundwater recharge and surface runoff. Depending on the specific alternative, primary water resource issues include

potential leaching of metals (lead, copper, aluminum, barium, and zinc) derived from bombs and small arms munition, fuel combustion by-products from static ground testing, and residual fuel leaks or spills. Erosion caused by bombing and small arms training is also considered a potential issue.

4.3.1 No Action Alternative

Groundwater

Munition residue resulting from A/S training activities, including copper, lead, aluminum, and barium, could migrate into the groundwater of TAs B-71 and B-82 in levels that could be of environmental concern. The occurrence or extent of groundwater contamination is currently unknown; however, groundwater quality at the test areas is not anticipated to be affected by the described mission activities. Soil concentrations of metal contaminants due to bombing activities are not expected to approach regulatory thresholds, as described in Section 4.2.1. With the implementation of water quality management requirements identified in Section 2.5, the potential for contamination would be greatly reduced. The pertinent management requirements are provided below:

- No new cleared target areas should be established within 200 feet of any natural water body.
- Detonations of explosives should not occur within 250 feet of any natural water bodies.
- If any ordnance lands in stream bank areas, it should be removed immediately in accordance with Air Force regulations.

The possibility also exists for fuel spills during munition cook-off activities associated with static ground tests. Fuel could then potentially migrate into the groundwater. Cleanup procedures are in place for soil contamination due to fuel spills.

Surface Water

Chemical residues (particularly lead) deposited during A/S activities could dissolve into the soil solution and enter surface waters such as Turtle Creek and West Branch by seepage or groundwater recharge. Contaminants could also enter surface waters by storm water runoff and soil erosion. The presence and concentration of metals in surface waters on and near the test areas is unknown; however, the distance between testing sites and the perennial stream systems adjacent to the test areas is fairly large. Turtle Creek, which is the nearest surface water resource to both test areas, lies approximately 3,000 to 4,000 feet (0.5 to 0.75 of a mile) from the nearest target sites. In the case of lead, the risk to surface waters is considered minimal if the source is more than 0.25 mile away (USFWS, 2008). The surrounding surface waters are therefore considered to be at minimal risk from ground water-based transport of contaminants. Ground cover in the area may function as a pollution filter, intercepting runoff before it reaches surface waters and the associated wetlands and floodplains.

Static ground tests are conducted in the northern part of TA B-71. Water quality could be affected by the combustion of black powder as solid ash materials settle locally around the cook-off container. Potassium compounds such as potassium carbonate and potassium sulfate,

produced from the burning of black powder, would be the primary constituents of black powder ash. Emission factors were not available for potassium compounds, but assuming a starting amount of 1,525 pounds and a standard percentage of potassium nitrate (74 percent) in black powder, a maximum of 770 pounds of potassium carbonate would be produced, depending on the combustion process (U.S. Air Force, 2003a). Some of the potassium carbonate could potentially reach nearby surface waters through runoff or atmospheric deposition, though the amount is unknown. Turtle Creek is approximately 3,000 feet northwest and West Branch is approximately 8,000 feet southeast of the static ground testing location. This portion of the test area is relatively flat and sandy with no close association with surface waters, and drainage patterns are oriented toward the interior. Although surface waters may occasionally receive nutrient input from static ground testing, persistent algal growth or other long term effects are not anticipated. Biological index sampling and analysis performed by the FDEP indicates that Turtle Creek is healthy (U.S. Air Force, 2003a).

Although drainage patterns on TA B-71 near the static ground testing location are oriented inward, drainage patterns on some other portions are oriented toward West Branch. The test area perimeter adjacent to West Branch is eroding due to slope angle. The FDEP previously found that Lightwood Knot Branch (fed by West Branch) is impaired due to clay pit erosion (U.S. Air Force, 2003). Some erosion is occurring on TA B-82 due to soil composition, slope, and lack of vegetation, and nearby streams such as Turtle Creek could be affected. It is unknown whether eroded sediments are transported off of the test area. Erosion at TA B-82 does not appear to be caused by mission activities.

Wetlands

No wetlands occur within the boundaries of TAs B-71 or B-82, although wetlands border small sections of the test areas. In accordance with the CWA (USC 1344-Section 404) and AFI 32-7064, all proposed activities would avoid direct and indirect impacts to wetland resources. Furthermore, implementation of specific wetland management requirements and water quality management requirements would greatly reduce the potential for impacts. Surface waters, including wetlands, are not expected to be impacted by mission activities.

Floodplains

The Turtle Creek floodplain lies in proximity to the borders of TAs B-71 and B-82, although only a small portion actually occurs within the boundary of TA B-71. Impacts to floodplains would not be significant under the No Action Alternative. None of the actions involve changes to the floodplain. Further, there are no habitable structures at risk from any changes to the floodplain. Training activities would not alter flow regimes of 100-year floods.

Coastal Zone

Components of the No Action Alternative would take place within the jurisdictional concerns of the FDEP and therefore would require a consistency determination with respect to Florida's Coastal Zone Management Plan and the CZMA. Eglin AFB has prepared a CZMA determination to address the potential impacts to the coastal zone (Appendix E).

4.3.2 Alternative 1

Groundwater

Impacts to groundwater would not be significant under Alternative 1. Bomb expenditures associated with A/S training would decrease, and the resulting potential for groundwater contamination due to chemical residues would decrease as well. Soil concentrations of metal contaminants due to bombing activities would not approach regulatory thresholds. Small arms expenditures associated with S/S training would be added under this alternative, with further potential to contaminate groundwater; however, analysis in Section 4.2.2 concluded that lead and other metal residues from small arms munition would not be expected to significantly impact groundwater, particularly with increasing distance from the source. Fuel spills could contaminate groundwater, but cleanup measures are in place and this is expected to be an infrequent occurrence.

Surface Water

There would be no significant impacts to surface waters under Alternative 1. Chemical residues from A/S and S/S activities would be unlikely to enter surface waters in significant concentration through groundwater seepage. Copper and lead would degrade over time, become soluble in the soil solution, and could migrate into groundwater systems. However, based on groundwater and soil studies of lead-contaminated sites on Eglin, the Installation Restoration Program has determined that lead generally exhibits limited vertical migration in the soil. It is theorized that lead degrades slowly in the Eglin soil environment and generally does not manifest itself in the soil or groundwater, particularly with increased distance from the point of origin. Further, the distance between testing sites and streams is sufficient to minimize the risk of contamination due to runoff. Ground cover would likely function as a pollution filter, intercepting surface runoff before it reaches these surface waters and associated wetlands and floodplains. Erosion is not likely to accelerate under this alternative. Although small arms training would be introduced, the number of bomb expenditures would decrease. There would be no use of black powder during static ground testing under this alternative, and the associated potassium compounds would not enter surface waters. Implementation of erosion control and water quality management requirements, identified in Section 2.5, would further reduce the potential for impacts.

Wetlands

There would be no significant impacts to wetlands under Alternative 1. In accordance with the CWA (USC 1344-Section 404) and AFI 32-7064, all activities proposed at TAs B-71 and B-82 would avoid direct and indirect impacts to wetland resources. Furthermore, implementation of specific wetland management requirements and water quality management requirements would greatly reduce the potential for impacts. Surface waters, including wetlands, are not expected to be impacted by mission activities.

Floodplains

There would be no significant impacts to floodplains under Alternative 1. The Turtle Creek floodplain lies in proximity to the borders of TAs B-71 and B-82, although only a small portion actually occurs within the boundary of TA B-71. None of the actions involve changes to the floodplain. Further, there are no habitable structures at risk from any changes to the floodplain. Training activities would not alter flow regimes of 100-year floods.

Coastal Zone

Components of Alternative 1 would take place within the jurisdictional concerns of the FDEP and therefore would require a consistency determination with respect to Florida's Coastal Zone Management Plan and the CZMA. Eglin AFB has prepared a CZMA determination to address the potential impacts to the coastal zone (Appendix E).

4.3.3 Alternative 2

Groundwater

Impacts to groundwater would not be significant under Alternative 2. Analysis in Section 4.2.3 examined the potential for contaminants from expended items to migrate from the surface into groundwater and exceed regulatory standards for groundwater quality. Munition expenditure levels associated with this alternative are not expected to cause metal soil concentrations sufficient to exceed regulatory thresholds. With implementation of the water quality management requirements identified in Section 2.5, the potential for groundwater contamination would be greatly reduced.

Surface Water

There would be no significant impacts to surface waters under Alternative 2. Chemical residues from A/S and S/S activities would be unlikely to enter surface waters in significant concentration through groundwater seepage. Copper and lead would degrade over time, become soluble in the soil solution, and could migrate into groundwater systems. However, based on groundwater and soil studies of lead-contaminated sites on Eglin, the Installation Restoration Program has determined that lead generally exhibits limited vertical migration in the soil. It is theorized that lead degrades slowly in the Eglin soil environment and generally does not manifest itself in the soil or groundwater, particularly with increased distance from the point of origin. Further, the distance between testing sites and streams is sufficient to minimize the risk of contamination due to runoff. Ground cover would likely function as a pollution filter, intercepting surface runoff before it reaches these surface waters and associated wetlands and floodplains. Erosion may be initiated or accelerated under this alternative, but the implementation of erosion control and water quality management requirements, identified in Section 2.5, would reduce the potential for impacts. There would be no use of black powder during static ground testing under this alternative, and the associated potassium compounds would not enter surface waters.

Wetlands

There would be no significant impacts to wetlands under Alternative 2. In accordance with the CWA (USC 1344-Section 404) and AFI 32-7064, all activities proposed at TAs B-71 and B-82 would avoid direct and indirect impacts to wetland resources. Furthermore, implementation of specific wetland management requirements and water quality management requirements would greatly reduce the potential for impacts. Surface waters, including wetlands, are not expected to be impacted by mission activities.

Floodplains

There would be no significant impacts to floodplains under Alternative 2. The Turtle Creek floodplain lies in proximity to the borders of TAs B-71 and B-82, although only a small portion actually occurs within the boundary of TA B-71. None of the actions involve changes to the floodplain. Further, there are no habitable structures at risk from any changes to the floodplain. Training activities would not alter flow regimes of 100-year floods.

Coastal Zone

Components of Alternative 2 would take place within the jurisdictional concerns of the FDEP and therefore would require a consistency determination with respect to Florida's Coastal Zone Management Plan and the CZMA. Eglin AFB has prepared a CZMA determination to address the potential impacts to the coastal zone (Appendix E).

4.4 BIOLOGICAL RESOURCES

This section describes the potential impacts to the ecological associations, sensitive habitats, and sensitive species that were identified in the previous chapter. The analysis covers the No Action Alternative as well as Alternative 1 and Alternative 2, and their respective potential impact on each biological resource group.

4.1.1 No Action Alternative

This alternative would continue the level of activity analyzed in the 2003 TAs B-71 and B-82 Final PEA (U.S. Air Force, 2003). Test Areas B-71 and B-82 are predominantly open grassland or urban/landscaped areas and are subject to frequent military activity. As such, they do not contain areas designated as sensitive habitats and would not be considered preferred habitat for sensitive species.

The southwestern portion of TA B-71 does contain an area classified as Sandhills Ecological Association that is also RCW foraging habitat (Figure 3-4 and Figure 3-5).

Sensitive Species

Red-cockaded Woodpecker

Based on the growth trend of the RCW tracked by the Eglin Natural Resources Section (NRS) (96 CEG/CEVSN) current levels of military activity in established test areas such as TA B-71 and TA B-82 have not adversely affected RCW populations (U.S. Air Force, 2010). The potential impacts to RCW from test and training activities include the direct physical impact from munitions and disturbance from noise. During normal procedures, the areas of RCW foraging habitat in and around TAs B-71 and B-82 would not be affected. Therefore, the potential risk of physical impact to the RCW would be negligible.

While there are no documented RCW cavity trees within the boundaries of TAs B-71 and B-82, there are numerous active and inactive trees present in close proximity to both test areas. The associated forage habitat from these RCW clusters extends inside the boundaries of both test areas. On TA B-71, approximately 221 acres exist in the southeastern portion and within TA B-82 there are approximately 36 acres of foraging habitat (Figure 3-6). This foraging habitat is subject to special protection and before any tree clearing, units must coordinate with Eglin NRS. Eglin applies the *Management Guidelines for the Red-Cockaded Woodpecker on Army Installations* (U.S. Army, 2006), which details the allowed and restricted activities near active RCW trees, to those activities performed near RCW trees. Activities that occur within 200 feet of a marked cavity tree are limited to those of a transient nature (less than 2 hours duration). Therefore, any test or training action that is expected to occur in a single location for more than 2 hours within a 200-foot buffer of an active RCW tree must be coordinated through Eglin NRS (96 CEG/CEVSN). Such activities would be evaluated on a case-by-case basis for their potential impact to the RCW.

Observation of RCW exposed to noise from Eglin range activities, vehicular traffic, and other mission-related activities have shown the RCW has some tolerance to disturbance (Delaney et al., 2002). Suitable habitat appears to outweigh any negative influences associated with noise (whether that is construction or military bombing). Observations have indicated that many animals become adapted to human activities and noises (Busnel, 1978). Scientists who have researched the effects of noise on wildlife report that animals may initially react with a startle effect from noises, but adapt over time, so that even this behavior is eradicated (Busnel, 1978). Based on the fact that the RCW population continues to grow at Eglin, including areas in close proximity to test areas, it appears that they have adapted to all of the noises associated with military missions. Training may temporarily disturb individuals or populations and foraging RCWs may avoid areas where disturbance is occurring. Pioneering RCWs may be affected by noise from daily operations and not colonize or immigrate to new areas within the test site or access roads. This could affect the growth of the RCW population adjacent to the proposed activity area. However, based on the existence of RCW habitat despite historical mission impact, future mission activities at TA B-71 and TA B-82 would have no effect on the RCW.

Eastern Indigo Snake

Both test areas are also considered suitable, although not preferred, habitat for Eastern indigo snake and gopher tortoise. Because it uses a variety of habitat types, the Eastern indigo snake

could occur anywhere on the Eglin mainland reservation, including test areas. The species is uncommon; therefore, the likelihood of impact from test and training activities is considered extremely remote. In 2008, Eglin NRS submitted a programmatic biological assessment (BA) to the USFWS to address impacts to the Eastern indigo snake from testing and training activities, general range road usage and maintenance, and construction activities. Within that BA, the NRS has adapted and modified the USFWS Standard Protection Measures for the Eastern indigo snake for use on the Eglin reservation (U.S. Air Force, 2008). The BA also outlines procedures to be used for implementing those protection measures.

Gopher Tortoise

Test areas B-71 and B-82 have not been formally surveyed for gopher tortoise burrows, however, it is possible that they do exist there. Other test areas of similar land cover/land use types have been documented to contain active and inactive burrows (U.S. Air Force, 2010). Potential for significant habitat alteration exists from munition and training missions resulting in the collapse of gopher tortoise burrows, however, this potential is infrequent. Training and heavy missions should be avoided near known gopher tortoise burrows. If a gopher tortoise or gopher tortoise burrow is identified within the proposed site of one of these activities, personnel must contact the Eglin NRS to inspect, evaluate, and possibly relocate the gopher tortoise. Also, prior to any clearing or establishment of new targets, mission personnel must contact Eglin NRS to conduct a survey of the area. Transportation and release of tortoises would follow guidelines established by the FWC in Gopher Tortoise Permitting Guidelines (FWC, 2008).

Reticulated Flatwoods Salamander

Potential habitat for the reticulated flatwoods salamander exists in proximity to TA B-71. These areas are outside the northern and southern boundaries of the test area and salamander individuals are unlikely to be found within the test area. Restriction of ground disturbing activities applies within the 1,500-foot habitat buffer. Potential impact to the reticulated flatwoods salamander and its habitat are unlikely.

Florida Bog Frog

One confirmed bog frog pond exists in proximity to B-82. The pond is outside the Eastern boundary of the test area and bog frog individuals are unlikely to be found within the test area. However, as a precaution, restriction of ground disturbing activities within 100 feet of applicable ponds, streams and wetlands would further reduce the potential for impact.

Florida Black Bear

The Florida Black Bear may be found in the Sandhills, and also in stream riparian areas, which they use as habitat and travel corridors. The presence of several creeks enhances the possibility of black bear potential. Because the majority of the test area is cleared, it is unlikely that black bear would traverse the open area. Vehicle strikes are the primary concern for bears on Eglin, thus drivers should be alert to the presence of bears to avoid impacts. The Florida black bear is unlikely to be adversely impacted by test and training activities.

4.1.2 Alternative 1

For Alternative 1, the potential impact to biological resources is expected to be similar to the No Action Alternative. Since no new types of activities, new user groups, or new kinds of expendables have been identified for the foreseeable future, the risks to sensitive habitats and sensitive species are the same as discussed for the No Action Alternative. The increase in frequency of missions and training is not anticipated to significantly impact biological resources.

Alternative 1 would result in increased munition expenditures associated with training activities. Although some risk of wildfire would result from increased munition use, no direct impacts to sensitive species or habitats are anticipated from munitions. Adherence to the Wildland Specific Action Guidelines for Eglin (U.S. Air Force, 2002), which include restrictions during extreme fire danger, would reduce the likelihood of a mission-induced wildfire and its potential negative impacts.

4.1.3 Alternative 2

For Alternative 2, the potential impact to biological resources is expected to be similar to the No Action Alternative and Alternative 1. However, since Alternative 2 provides for a significant increase in frequency of testing and training above the No Action Alternative, there may be additional likelihood of impact.

Alternative 2 would result in increased munition expenditures associated with training activities. Although some risk of wildfire would result from increased munition use, no direct impacts to sensitive species or habitats are anticipated from munitions. Adherence to the Wildland Specific Action Guidelines for Eglin (U.S. Air Force, 2002), which include restrictions during extreme fire danger, would reduce the likelihood of a mission-induced wildfire and its potential negative impacts.

Red-cockaded Woodpecker

Increased frequency of missions on TAs B-72 and B-81 would increase potential encounters with RCW. Eglin would continue to apply the *Management Guidelines for the Red-Cockaded Woodpecker on Army Installations* (U.S. Army, 2006) to activities near RCW trees. However, if additional tests and training operations are conducted within the RCW foraging habitat, they would be more disruptive to the species than the current level of activity. The RCW population continues to grow at Eglin including areas in close proximity to test areas; therefore it appears that they have adapted to the noise associated with military missions, and the increase in missions described for Alternative 2 would not significantly impact RCW or their habitat.

If additional targets or training areas are proposed for the southwest portion of TA B-71, it may require the removal of long-leaf pines. Since long-leaf pines of significant age and size are the sole nesting choice for RCW, the removal of such trees must be evaluated on a case-by-case basis for its significance to the effected RCW population. This action is not addressed within the analysis and must be coordinated through the Eglin NRS (96 CEG/CEVSN). The Eglin NRS

believes Alternative 2 would have no effect to the RCW and ESA Section 7 consultation would not be required.

Eastern Indigo Snake

Increased frequency of missions may increase the likelihood of encountering an Eastern indigo snake. However, given the reclusive nature of the species and their assumed rarity, the potential impact from Alternative 2 is not significant.

Gopher Tortoise

Increased mission activity under Alternative 2 must continue to comply with management requirements that are designed to protect the species. The greatest risk to gopher tortoise from Alternative 2 is the potential for significant habitat alteration from munition and training missions. If possible, training and heavy missions should be planned to avoid known gopher tortoise burrows. If gopher tortoise burrows cannot be avoided due to mission requirements, mission personnel must contact Eglin NRS to conduct a survey of the area. If necessary, Eglin NRS can relocate tortoises according to guidelines established by the FWC in *Gopher Tortoise Permitting Guidelines* (FWC, 2008).

Reticulated Flatwoods Salamander

Increased mission activity under Alternative 2 must continue to comply with management requirements that are designed to protect the species. Increased frequency is not expected to change the potential impacts to the reticulated flatwoods salamander, as discussed under the No Action Alternative.

Florida Bog Frog

Increased mission activity under Alternative 2 must continue to comply with management requirements that are designed to protect the species. Increased frequency is not expected to change the potential impacts to the Florida bog frog, as discussed under the No Action Alternative.

Florida Black Bear

Increased mission activity under Alternative 2 must continue to comply with management requirements that are designed to protect the species. Increased frequency is not expected to change the potential impacts to the Florida black bear, as discussed under the No Action Alternative.

4.5 CULTURAL RESOURCES

4.5.1 No Action Alternative

The No Action Alternative represents the previously approved level of activity at TAs B-71 and B-82 and would not adversely affect cultural resources.

Continued coordination should occur with the 96 CEG/CEVSH prior to future proposed activities. If during the course of any undertaking suspected cultural resources are inadvertently discovered, all actions in the immediate vicinity will stop and efforts will be made to protect the find from further impact. The 96 CEG/CEVSH will be contacted to assess the find and to determine what legal mandates are applicable and whether mitigation and consultations are required (U.S. Air Force, 2006b).

4.5.2 Alternative 1

No adverse effects to cultural resources are expected under Alternative 1. One NRHP-eligible archaeological site is located on the boundary of TA B-71 but is not located near identified target areas. No historic cemeteries, traditional cultural properties or historic districts are present within TA B-71 nor TA B-82.

Formal assessments of portions of TAs B-71 and B-82 have not been conducted, but initial indications are that archaeological surveys will not be permitted within the existing boundaries due to safety concerns. In cases such as these, CRM personnel make efforts to visually identify, to research, and to assess for historic significance all standing structures such as buildings, targets, bridges, bunkers, etc. (U.S. Air Force, 200x).

All future proposed actions must adhere to standards and guidelines outlined in the Eglin AFB Integrated Cultural Resources Management Plan (U.S. Air Force, 2006) and the previously developed Programmatic Agreement between the AAC, the Florida SHPO, and the Advisory Council on Historic Preservation (U.S. Air Force, 2003b). Any activities that involve ground disturbance may potentially impact cultural resources. As such, consultation with Eglin's Cultural Resources Section (96 CEG/CEVSH) is required to obtain the latest information prior to any ground-disturbing activities that might impact these areas.

Continued coordination should occur with the 96 CEG/CEVSH prior to future proposed activities. If during the course of any undertaking suspected cultural resources are inadvertently discovered, all actions in the immediate vicinity will stop and efforts will be made to protect the find from further impact. The 96 CEG/CEVSH will be contacted to assess the find and to determine what legal mandates are applicable and whether mitigation and consultations are required (U.S. Air Force, 2006).

4.5.3 Alternative 2

No adverse effects to cultural resources would be expected under the increase in activities under Alternative 2, the same as is described under Alternative 1. As with Alternative 1, continued coordination should occur with the 96 CEG/CEVSH prior to future proposed activities. If during the course of any undertaking suspected cultural resources are inadvertently discovered, all actions in the immediate vicinity will stop and efforts will be made to protect the find from further impact. The 96 CEG/CEVSH will be contacted to assess the find and to determine what legal mandates are applicable, and whether mitigation and consultations are required (U.S. Air Force, 2006b).

4.6 AIR QUALITY

Air quality is evaluated using a 10 percent threshold of Okaloosa County emissions. Emissions are also compared to the NAAQS to verify air emissions are not exceeding federal levels. Air emissions were calculated based on a representative munition for each expenditure category (i.e., bombs, countermeasures, rockets, etc) in which the net explosive weight was obtained and multiplied by the quantity and appropriate emission factors.

4.6.1 No Action Alternative

The No Action Alternative authorizes the level of activity approved in the 2003 REA. Table 4-6 summarizes the munition emissions compared to the region of influence while Table 4-7 shows the emissions compared to the NAAQS. Emissions would be below the federal standards and the 10 percent threshold. Emission factors for the use of JP-8 fuel in fast and slow cook-off operations were only available for carbon dioxide. Under the No Action Alternative 576 tons of carbon dioxide would be emitted. Florida emits 243 million metric tons carbon dioxide annually (2.6×10^8 tons). No impacts to air quality are expected for the No Action Alternative.

Table 4-6. Munition Emissions for the No Action Alternative Compared to Okaloosa County

	Emissions (tons/year)				
	CO	NO _x	PM	SO _x	VOC
Total Okaloosa County	63,274	7,132	8,736	839	10,333
B-71 Emissions	2.214	0.273	1.904	0.013	0.249
% Okaloosa County Emissions	0.003%	0.004%	0.022%	0.002%	0.002%
B-82 Emissions	2.515	0.382	14.483	0.022	0.249
% Okaloosa County Emissions	0.004%	0.005%	0.166%	0.003%	0.002%

CO = carbon monoxide; NO_x = nitrogen oxide; PM = particulate matter; SO_x = sulfur oxide; VOC = volatile organic compounds

Table 4-7. Munition Emissions for the No Action Alternative Compared to the NAAQS

Criteria Pollutant	Averaging Time	NAAQS (ppm)	Calculated Concentration (ppm)	
			B-71	B-82
CO	1-Hour	35	7.115E-07	9.448E-07
	8-Hour	9	4.980E-07	6.614E-07
NO _x	Annual	0.053	1.403E-09	2.174E-09
SO ₂	3-Hour	0.5	3.677E-09	6.533E-09
	24-Hour	0.14	1.634E-09	2.903E-09
	Annual	0.03	3.268E-10	5.807E-10
PM ₁₀	24-Hour	150 µg/m ³	0.645 µg/m ³	5.116 µg/m ³
	Annual	50 µg/m ³	0.129 µg/m ³	1.023 µg/m ³

ppm = parts per million; µg/m³ = micrograms per cubic meter; CO = carbon monoxide; NAAQS = National Ambient Air Quality Standards; NO_x = nitrogen oxides; SO₂ = sulfur dioxide; PM₁₀ = particulate matter with a diameter of less than or equal to 10 microns

4.6.2 Alternative 1

This alternative authorizes the current level and foreseeable future which means the maximum annual expenditures were used to determine impacts for Alternative 1. The increase in expenditures would cause a slight increase in air emissions although the increase would not exceed the 10 percent threshold (Table 4-8) or the national standards (Table 4-9). Under this alternative 811 tons of carbon dioxide would be emitted from fast and slow cook-off operations, compared to state carbon dioxide emissions this would be minimal. Emissions would be minimal and would have no adverse effect on air quality for Alternative 1.

Table 4-8. Munition Emissions for Alternative 1 Compared to Okaloosa County

	Emissions (tons/year)				
	CO	NO _x	PM	SO _x	VOC
Total Okaloosa County	63,274	7,132	8,736	839	10,333
B-71 Emissions	2.205	0.270	1.542	0.012	0.249
% Okaloosa County Emissions	0.003%	0.004%	0.018%	0.001%	0.002%
B-82 Emissions	2.195	0.266	1.109	0.012	0.249
% Okaloosa County Emissions	0.003%	0.004%	0.013%	0.001%	0.002%

CO = carbon monoxide; NO_x = nitrogen oxide; PM = particulate matter; SO_x = sulfur oxide; VOC = volatile organic compounds

Table 4-9. Munition Emissions for Alternative 1 Compared to the NAAQS

Criteria Pollutant	Averaging Time	NAAQS (ppm)	Calculated Concentration (ppm)	
			B-71	B-82
CO	1-Hour	35	7.048E-07	6.967E-07
	8-Hour	9	4.933E-07	4.877E-07
NO _x	Annual	0.053	1.381E-09	1.354E-09
SO ₂	3-Hour	0.5	3.594E-09	3.496E-09
	24-Hour	0.14	1.597E-09	1.554E-09
	Annual	0.03	3.195E-10	3.108E-10
PM ₁₀	24-Hour	150 µg/m ³	0.516 µg/m ³	0.362 µg/m ³
	Annual	50 µg/m ³	0.103 µg/m ³	0.072 µg/m ³

ppm = parts per million; µg/m³ = micrograms per cubic meter; CO = carbon monoxide; NAAQS = National Ambient Air Quality Standards; NO_x = nitrogen oxides; SO₂ = sulfur dioxide; PM₁₀ = particulate matter with a diameter of less than or equal to 10 microns

4.6.3 Alternative 2

This alternative authorizes the level of activity under Alternative 1 plus a 300-percent increase in mission activity. Munition use under this alternative would cause a slight increase in air emissions but would not exceed the 10 percent general conformity threshold or the federal NAAQS (Table 4-10 and Table 4-11). Alternative 2 carbon dioxide emissions from fast and slow cook-off operations would total 1,623 tons annually. This would be a minimal impact compared to state annual carbon dioxide emissions. No adverse impacts are expected from mission activities related to Alternative 2 are expected.

Table 4-10. Munition Emissions for Alternative 2 Compared to Okaloosa County

	Emissions (tons/year)				
	CO	NO _x	PM	SO _x	VOC
Total Okaloosa County	63,274	7,132	8,736	839	10,333
B-71 Emissions	2.296	0.303	5.346	0.015	0.249
% Okaloosa County Emissions	0.004%	0.004%	0.061%	0.002%	0.002%
B-82 Emissions	2.255	0.288	3.612	0.014	0.249
% Okaloosa County Emissions	0.004%	0.004%	0.041%	0.002%	0.002%

CO = carbon monoxide; NO_x = nitrogen oxide; PM = particulate matter; SO_x = sulfur oxide; VOC = volatile organic compounds

Table 4-11. Munition Emissions for Alternative 2 Compared to the NAAQS

Criteria Pollutant	Averaging Time	NAAQS (ppm)	Calculated Concentration (ppm)	
			B-71	B-82
CO	1-Hour	35	7.753E-07	7.432E-07
	8-Hour	9	5.427E-07	5.202E-07
NO _x	Annual	0.053	1.614E-09	1.508E-09
SO ₂	3-Hour	0.5	4.458E-09	4.064E-09
	24-Hour	0.14	1.981E-09	1.806E-09
	Annual	0.03	3.963E-10	3.613E-10
PM ₁₀	24-Hour	150 µg/m ³	1.868 µg/m ³	1.252 µg/m ³
	Annual	50 µg/m ³	0.374 µg/m ³	0.250 µg/m ³

ppm = parts per million; µg/m³ = micrograms per cubic meter; CO = carbon monoxide; NAAQS = National Ambient Air Quality Standards; NO_x = nitrogen oxides; SO₂ = sulfur dioxide; PM₁₀ = particulate matter with a diameter of less than or equal to 10 microns

4.7 NOISE

Generally, individual noise events are expressed in decibels, weighted to consider specific noise aspects. In the case of impulsive noise, such as munitions, the common weighting used is SPL. The actual noise level is indicated as dBP. This weighs the sound energy contained in all frequencies equally. C-weighting (dBC) is also often used for impulsive noise. This metric emphasizes the lower frequency aspect of the noise spectrum which addresses the additional annoyance from vibration of structures.

There are no guidelines or criteria for assessing annoyance related to single noise events. The amount of annoyance is dependent on several factors, such as the characteristics of the noise (i.e., intensity), duration, repetitions, abruptness of onset or cessation, and the ambient noise against which a particular noise event occurs. The factors influencing annoyance, based on surveys are:

- The degree of interference of the noise with activity
- Previous experience of the community with the particular noise
- The time of day during which the noise occurs
- The extent the people believe that the noise output could be controlled

Noises with less than 115 dBP sound level generally do not cause complaints. Sound levels of 115 to 130 dBP have a moderate complaint response and high potential for annoyance and possible structural damage occur at levels 130 to 140 dBP. Noise levels greater than 140 dBP can cause physiological and structural damage. Also, the threshold of permanent physiological damage to unprotected human ears is set at 140 dBP.

Sound pressure levels were used in this analysis to assess potential noise impacts resulting from testing and training activities on TAs B-71 and B-82. The analysis compared the munition with the highest NEW to the known value from the detonation of two Poseidon rocket motors with a combined NEW of 31,720 pounds measured at maximum peak noise level of 125 dBP (UTTR, 2002). For the following alternatives, munition noise was compared against this known sound level.

4.7.1 No Action Alternative

Under the No Action Alternative, the Air-to-Ground Missile (AGM-65G) the MK-84 General Purposed Bomb are the munitions with the highest NEWs (150 and 945 pounds) at TAs B-71 and B-82, respectively, that is currently used. On TA B-71, this is 0.5 percent the explosive weight of the Poseidon rocket motors which means the noise produced from the detonation of the AGM is expected to be less than 115 dBP, which generally does not cause complaints. The TA B-82 MK-84 munitions are approximately 3 percent of the reference munitions. Atmospheric conditions (temperature and humidity) affect the impacts of noise more than the quantity of explosive used during the bomb detonation event; sounds propagate further at higher temperatures and low humidity. It can be said that noise occurring from the No Action Alternative would not exceed the 125 dBP level, thus munition noise is not expected to attenuate at levels sufficient to cause harm or annoyance to receptors off base. No adverse impacts to nearby receptors are expected from operations occurring at TAs B-71 and B-82

4.7.2 Alternative 1

Under Alternative 1, several different types of munitions would be used with high net explosive weights. The greatest of these is a Ground-based Midcourse Defense (GMD) first stage solid rocket motor which has an explosive weight of 33,193 pounds. This explosive weight is greater than the reference munition by 4 percent, thus, noise from the expenditure of this munition is expected to be in the 125-130 dBP range which has a moderate potential to cause annoyance and may cause structural damage. The proximity of the receptors to the test area would allow for attenuation or reduction of sound. Sound propagation decreases with cooler temperatures and higher humidity. Some receptors may be annoyed from the detonation of this munition. Alternative 1 expects a total of two of these to be expended, therefore this type of noise would rarely occur. Other high explosive weight munitions on TA B-71 include general purpose bombs and rocket motors which have net explosive weights of 1,605 and 945 pounds, respectively. These would not create noise levels greater than 125 dBP.

The munition that would have the greatest potential to propagate to receptors is the MK-84. As described under the No Action Alternative, the MK-84 is 3 percent the explosive weight of the reference munition and would not cause noise levels greater than 125 dBP. No adverse impacts

are expected from munition use on TA B-82. Some annoyance may occur from the GMD first stage solid rocket motor or other munitions with explosive weights of that magnitude on TA B-71.

4.7.3 Alternative 2

Alternative 2 would have the same munitions as described in Alternative 1 that would have the potential to cause the greatest noise impacts. Under this alternative, the potential for noise impacts would be greater in that the number of munition increases, therefore, the frequency of noise would be higher. The level of noise would not increase from Alternative 1 unless multiple operations are occurring simultaneously. No adverse impacts from noise are expected from operations on TA B-82. Annoyance may occur from the detonation of the GMD first stage solid rocket motors on TA B-71.

4.8 SAFETY

Military lands are open to recreational use as long as public use and safety does not interfere with the military mission; the use of Reservation lands for mission activities is a higher priority. The Sikes Act authorizes and encourages Air Force bases to open areas for outdoor recreation, and requires the Air Force to manage the natural resources of reservations to provide for sustained multipurpose use. The Air Base Wing Commander has inherent administrative authority to revoke outdoor recreation privileges (U.S. Air Force, 2003a). In general, testing missions on Eglin are using longer-range weapons and are requiring larger safety footprints extending over more interstitial area with time. Other actions currently undergoing NEPA assessment, such as actions associated with the Eglin Base Realignment and Closure implementation, may also affect access to recreational areas on the Range. Consequently, future conflicts between recreational use and mission use may arise.

4.8.1 No Action Alternative

Ordinance Use

A number of standard safety procedures exist to ensure limited public access to affected test areas during testing or training activities. These procedures require every practical effort to keep the designated areas clear of all nonparticipating vehicles and personnel. A key part of these procedures includes development of weapon safety footprints, also referred to as surface danger zones (SDZs), which are employed for land-based training where live ordnance is used. These SDZs act as overlays that restrict activities that could normally occur within and adjacent to test or training areas. In general, for aircraft-launched weapons, the footprint increases as the distance from the weapons release to the target increases. The same is true for altitude and speed at launch or release; as the launch altitude and/or aircraft speed increases, so does the size of the footprint (U.S. Air Force, 2003a).

The methodology for footprint formulation combines munition system science, computer modeling, and BMPs. These footprints include safety zones for initial impacts as well as

ricochets. A buffer zone is typically built into the footprint to further minimize the risk to the public or other resources from the testing of hazardous items on the range. Safety footprints are also employed for land-based training where live ordnance is used. Weapons safety footprints act as overlays that restrict activities that could normally occur within and adjacent to test areas (U.S. Air Force, 2003a).

All ordnance would be handled by trained and qualified personnel in accordance with Air Force and Army explosive safety standards and detailed published technical data. If any unauthorized personnel or vehicles are detected within the area during training, all activity is temporarily halted until the area is again cleared and secured (U.S. Air Force, 2003a).

Weapon safety footprints would be employed for land- and aircraft-based training where live or inert ordnance would be used. Standard safety procedures, such as closing range gates and blocking all passable trails, would be implemented in all cases to ensure limited public access to affected areas during training activities. As a result, there are no safety concerns based on the levels of activity authorized by the 2003 TAs B-71 and B-82 PEA (U.S. Air Force, 2003) under the No Action Alternative.

Unexploded Ordnance

For the 60 years the Eglin Range has been in use, the location of impact areas and the SDZs have changed many times. Impact areas and SDZs are locations where ordnance might have been accidentally dropped long or short of their target or might have landed after ricocheting. In 2000, Congress dictated an inventory of land contaminated by UXO to gain an understanding of the nationwide UXO liability. The Eglin inventory classified 724 square miles as active range using two subcategories: current impact areas (50,000 acres) and historic impact areas (335,000 acres). Test areas, some cantonment areas on historic ranges (not UXO-contaminated but restricted due to the mission), and some interstitial areas are closed to the public due to high UXO risk (U.S. Air Force, 2001).

Eglin has strict safety policies and procedures in place to minimize the risk posed by UXO to personnel. For example, areas that may contain UXO have signs posted to warn of potential danger, and Eglin's Outdoor Recreation Map shows areas of probable and possible UXO contamination. Members of the public are required to observe a UXO awareness video prior to being issued recreation permits to access the Range. No injuries to the public are known to have occurred at Eglin AFB as a result of UXO (Caldwell, 2008), however, UXO could potentially pose a danger to the people involved in training, as personnel must sometimes enter potentially hazardous test areas to set up targets or instrumentation in support of test or training activities. Other controls are in place for personnel involved in range management and/or engaged in missions on the range.

The 96th Civil Engineering Squadron Explosive Ordnance Disposal Flight (96 CES/CED) manages the risks posed by UXOs on the Range. Equipment such as metal detectors, robots, and protective "bomb suits" are routinely employed to find and deal with UXOs. Once a potentially dangerous item is found, the 96 CES/CED determines the best way to disarm it. The item may be removed to another location for disposal or it may be destroyed in place (a small amount of

plastic explosive is placed next to the item and detonated from a safe distance). The 96 CES/CED will then verify that no dangerous components from the item remain on the Range.

As the result of 60 years of use, most areas on the Eglin Range, including TAs B-71 and B-82 have the potential for UXO contamination. While a detailed records search of range use and potential UXO contamination on the Eglin Range has been accomplished by the USACE and a number of other studies have been completed, records of UXO contamination remain incomplete. Eglin has published a UXO Management Plan, which addresses historic use and contamination, current management practices, and future needs. A number of procedures are in place to minimize risks to Eglin personnel and members of the public who access the Eglin Range. To mitigate any potential adverse impacts from UXO, consultation and coordination with 96 CES/CED personnel would be required to address UXO on TAs B-71 and B-82. Therefore, there are no adverse affects to safety under the No Action Alternative.

Restricted Access

TAs B-71 and B-82 are located in areas that are permanently closed to the public. There are open recreation areas in the interstitial area immediately to the east corner of TA B-71 and one very small location in the north portion of TA B-71; TA B-82 is completely surrounded by permanently closed areas. However, some A/S training missions may require closure of much of the western portion of the range, potentially causing closure of Recreation Management Units, range roads, or in the case of the military, adjacent test areas. The size of the safety footprint depends upon the type of munition and its release characteristics. The duration of closure also depends upon munition and fuse type, and can range from a few hours up to two to three days for cases involving mines with delayed fuze settings. Targets are located in the interior portions of TA B-71 and TA B-82, which are surrounded by permanently closed restricted access areas.

It is difficult to determine what constitutes an unacceptable level of restricted access. Recreation permits issued by Eglin Natural Resources state that certain areas may be closed during the year for military testing and training; thus, applicants are aware of this possibility. If any military restricted access issues exist, they would likely be resolved through coordination of test area use. Real-time coordination between military testers and the Safety Office may allow for use of other areas of TAs B-71 and B-82, as well as adjacent test areas that fall within a mission safety footprint. Impacts to recreational users temporarily unable to use management units were probably slight given the large percentage of available recreational land in other management units on the reservation (recreational use is probably highest on weekends, while mission activity is highest on weekdays) and the proactive management of recreation.

4.8.2 Alternative 1

Ordnance Use

Under Alternative 1, the current level of activity at TAs B-71 and B-82 would be authorized. There would be no new user groups, types of activities, or kinds of munitions. Safety procedures and policies that are currently established would remain in effect, and all ordnance would be handled by trained and qualified personnel. As a result, no impacts to safety would occur.

Unexploded Ordnance

Similarly, current procedures and policies for UXO monitoring and clearing would remain in place under Alternative 1. These procedures minimize the risk to Eglin personnel operating on TAs B-71 and B-82. Users would continue to coordinate with the 96 CES/CED with regard to UXO encounters on TA B-71 and TA B-82. This would mitigate any potential adverse impacts to safety from UXO on TAs B-71 and B-82.

Restricted Access

As mentioned above, TAs B-71 and B-82 would remain permanently closed to public access. Under Alternative 1, the number of overall training missions would increase, so the frequency of access closures would increase as well. However, as discussed above, military conflicts would be resolved by coordination through the Safety Office. Recreational users are not likely to be significantly affected, due to the availability of other recreational areas and their tendency to use the areas on weekends and holidays when training missions are seldom conducted.

4.8.3 Alternative 2

Under Alternative 2, the frequency and total quantity of munitions used will increase by 300 percent. Despite this increase, the policies and procedures already in place would ensure that safety of Eglin AFB personnel is not jeopardized. Due to the increased use of munitions, the likelihood of UXO encounter is increased, but because of the policies in place and the continued coordination with the 96 CES/CEG, no new impacts to safety are anticipated. Frequency of access restrictions would likely increase as well, but it is not likely to have a significant adverse effect due to the reasons discussed above.

4.9 LAND USE

4.9.1 No Action Alternative

The No Action Alternative is defined as authorizing the level of activity approved in the 2003 TAs B-71 and B-82 PEA (U.S. Air Force, 2003). Although land use and recreational resources were not specifically discussed and analyzed in the 2003 PEA, restricted access to recreational areas was addressed. Land use was not covered because TA B-71 and TA B-82 have a specific land use designation that is crucial to the support of the National Security and Military Strategy of the DoD. Testing activities performed at TAs B-71 and B-82 are critical to building, maintaining, and improving the defense readiness of the U.S. military forces. Therefore, no significant impacts are anticipated to land use under the No Action Alternative.

There are, however, potential impacts to recreational resources under the No Action Alternative. During certain testing and training activities, the safety footprint often requires recreation management units be closed. Any impacts to recreational users are anticipated to be minor and temporary given the large percentage of available recreational areas in other management units on Eglin AFB. The duration of closure depends on many factors but a typical closure would amount to one day of restricted access to public recreational users. Therefore, no significant impacts are anticipated to land use and recreation resources under the No Action Alternative.

4.9.2 Alternative 1

Under Alternative 1, the level of activity would increase by the amount of foreseeable future activities as outlined in Table 2-1. The land use designation would remain as a test area for the primary purpose of supporting weapons system and training activities; therefore, no impacts are anticipated to land use under Alternative 1.

Expansion of current missions on TAs B-71 and B-82 would mean that potential impacts to recreational users from area closures would increase in frequency. Similar to the No Action Alternative, there would be a chance that mission safety profiles associated with certain testing and training activities would overlap recreational areas and therefore would require closures to sections of the interstitial areas that are open for recreational purposes. However, closures to these areas would only last for the duration of the activity and therefore are anticipated to be minor and temporary, and are not anticipated to result in a significant impact to land use or recreation resources.

4.9.3 Alternative 2

Under Alternative 2, the impacts to land use and recreational areas would be the same as those described under Alternative 1. There would be no changes to the land use designation so there would be no impacts to land use. Under this alternative, there is a possibility of a mission surge by 300 percent. This would likely result in more frequent closures to certain recreational areas in order to support mission activities performed at TAs B-71 B-82; however, impacts to recreational resources are anticipated to be minor and temporary since other areas would be available to recreational users and closures would only last for the duration of the activity. Therefore, no significant impacts are anticipated to land use or recreational resources.

4.10 SOCIOECONOMIC RESOURCES

4.10.1 No Action Alternative

The No Action Alternative is defined as authorizing the level of activity approved in the 2003 TAs B-71 and B-82 PEA (U.S. Air Force, 2003). Socioeconomic resources were not explicitly covered in the PEA; however, noise impacts to the public were considered and it was determined that a segment of the population outside the boundary of Eglin would be exposed to sound pressure levels of 115 dBP or greater during MK-82 or MK-83 bomb detonation during favorable weather conditions (U.S. Air Force, 2003). Exposure to 115 dBP carries a low to moderate risk of noise complaints.

As shown in Table 3-8, in 2008 there were only four noise complaints originating from two individuals in the areas of Fort Walton Beach and Mary Esther, the two closest communities to TAs B-71 and B-82; this represents a very small percentage of the population of the two cities. The two noise complaints originating in Mary Esther were due to an “explosion;” however, neither of the two noises had been confirmed to originate from activities at TAs B-71 or B-82. In addition, neither of the two low-flying noise complaints from Fort Walton Beach had been confirmed. None of the other noise complaints recorded in 2008 were confirmed to originate

from activities at TAs B-71 and B-82 (Table 3-8). Therefore, impacts to socioeconomic resources are anticipated to be minor and temporary.

4.10.2 Alternative 1

Under Alternative 1, the level of activity would increase by a foreseeable amount above the approved level in the 2003 TAs B-71 and B-82 PEA (U.S. Air Force, 2003). Under this alternative, it is anticipated that there would be more frequent noise impacts to the public from additional munition expenditures at TAs B-71 and B-82. Although more frequent, noise impacts are anticipated to be minor and temporary, lasting only for the duration of the activity.

No special risks to children or disproportionate noise impacts have been identified to areas of environmental justice concerns from activities performed at TAs B-71 and B-82. Therefore, only minor and temporary noise impacts from munition expenditures are anticipated to socioeconomic resources under Alternative 1.

4.10.3 Alternative 2

Under Alternative 2, there would be an increase of activity by 300 percent. Under this alternative, noise impacts to local communities would be similar to those described under Alternative 1. Similar to Alternative 1, an expansion of test missions would indicate that noise produced from missions in Alternative 1 would remain the same in terms of intensity but the number of noise events are anticipated to be more frequent than under Alternative 1. However, any noise impacts to the local communities are anticipated to be minor and temporary, lasting only the duration of the activity.

In addition, no special risks to children or disproportionate noise impacts have been identified to areas of environmental justice concerns from activities performed under Alternative 2 at TAs B-71 and B-82. Therefore, only minor and temporary noise impacts from munition expenditures are anticipated to socioeconomic resources under Alternative 2.

5. LIST OF PREPARERS

Name/Title	Project Role	Subject Area	Experience
Jason Koralewski Archaeologist M. Liberal Studies, Archaeology M.A. Anthropology B.A. Anthropology	Author	Cultural Resources; Technical Support	14 years environmental science
Alysia Baumann NEPA Specialist/Planner B.S. Chemical Engineering	Author	Air Quality and Noise	6 years environmental science
Brad Boykin Environmental Scientist B.S. Biomedical Science M.B.T. Biotechnology	Author	Chemical Materials and Safety	4 years biotechnology and chemistry fields
Bob Penrose Environmental Scientist B.S. Biology	Author	Biological Resources	5 years environmental science
Pamela C. McCarty Economist B.S.B.A., Economics M.A. Applied Economics	Author	Socioeconomics and Land Use	2 years socioeconomics
Debbie Quattrin Tech Editor B.F.A. Visual Communications A.A. General Science	Technical Editor		10 years editing
Mike Nation Environmental Scientist B.S. Environmental Science/Policy, Minor in Geography; A.A. General Science	GIS Analyst; Author	GIS analysis and figures	7 years environmental consultant, interagency coordination, GIS Arc View applications
Rick Combs Environmental Scientist M.S. Biology B.S. biology B.S. Business Administration	Author	Soils and Water Resources	8 years environmental science
Amy Sands NEPA Specialist/Planner M.A.S. Environmental Policy and Management B.A. Environmental Studies	Project Manager		7 years environmental science

This page is intentionally blank.

References

6. REFERENCES

Copies of referenced documents can be obtained through Eglin AFB's Public Affairs Office.

Busnel, R. G., 1978. Effects of Noise on Wildlife. Academic Press, Inc.

Caldwell, H., 2008. Personal communication via telephone between Henry Caldwell (Eglin AFB Safety Office) and Mike Nunley (SAIC) regarding UXO-related injuries on 27 October 2008.

Committee on Hearing, Bioacoustics, and Biomechanics (CHABA), 1977. Guidelines for Preparing Environmental Impact Statements on Noise, Report of Working Group 69 on Evaluation of Environmental Impact of Noise. Committee on Hearing, Bioacoustics, and Biomechanics, Assembly of Behavioral and Social Sciences, National Research Council, National Academy of Sciences, Washington, D.C.

Cultural Resource Information Management System (CRIMS), 2010. CRIMS at Eglin AFB. Accessed by Jason Koralewski on 25 May 2010.

Delaney, D. K., L. L. Pater, R. H. Melton, B. A. MacAllister, R. J. Dooling, B. Lohr, B. F. Brittan-Powell, L. L. Swindell, T. A. Beaty, L. D. Carlile, and E. W. Spadgenske, 2002. Assessment of Training Noise Impacts on the Red-cockaded Woodpecker: Final Report. February 2002.

Department of Defense (DoD), 2010. Toxics Release Inventory–Data Delivery System (TRI-DDS), Version 2001v3.11, web-based reporting database for munitions and range activities. Retrieved from <http://www.dod-tridds.org> on April 2010.

Federal Aviation Administration (FAA), 1985. Aviation Noise Effects. March 1985.

Federal Interagency Committee on Noise (FICON), 1992. Federal Agency Review of Selected Airport Noise Analysis Issues. August 1992.

Federal Interagency Committee on Urban Noise (FICUN), 1980. Guidelines for Considering Noise in Land-Use Planning and Control. Washington, D.C. NIS PB83-184838. June 1980.

Fidell, S., K. Pearsons, R. Howe, B. Tabachnik, L. Silvati, and D. S. Barber, 1995. Field study of noise induced sleep disturbance. *Journal of the Acoustical Society of America*, Vol 98, No 2, pp 1025–1033.

Florida Department of Environmental Protection (FDEP), 2006a. The 2006 Integrated Water Quality Assessment for Florida: 2006 305(b) Report and 303(d) List Update. Retrieved from http://www.dep.state.fl.us/water/tmdl/docs/2006_Integrated_Report.pdf on 11 July 2006.

Florida Department of Environmental Protection (FDEP), 2006b. 2006 Water Quality Assessment Report: Choctawhatchee-St. Andrew. Division of Water Resource Management. Retrieved from <ftp://ftp.dep.state.fl.us/pub/water/basin411/csa/assessment/G3AS-Chocta-LR-Merge.pdf> on 11 July 2006.

Florida Department of Environmental Protection (FDEP), 2007. Water Quality Assessment Report: Pensacola Bay. Division of Water Resource Management. Retrieved from ftp://ftp.dep.state.fl.us/pub/water/basin411/pensacola/assessment/Pensacola_Bay.pdf on 29 June 2007.

Florida Fish and Wildlife Conservation Commission (FWC), 2008. Gopher Tortoise Permitting Guidelines. April 2008.

References

- Haber, J., and D. Nakaki, 1989. Sonic Boom Damage to Conventional Structures. Final Report for Period August 1987–August 1988. Noise and Sonic Boom Impact Technology. Human Systems Division. Air Force Systems Command. Brooks Air Force Base, Texas. HSD-TR-89-001. February 1989.
- Johnson, J., 2010. Personal communication via email between Justin Johnson (96 CEG/CEVSNW) and Pamela McCarty (SAIC) regarding recreational activities on Eglin Air Force Base on 25 March 2010.
- Jones, D., 2010. Personal communication via email between Mr. David Jones (46 RANSS/TSRS) and Ms. Amy Sands (SAIC) regarding JP-8 fuel usage at Test Areas B-71 and B-82. 2 August 2010.
- Kryter, K. D., 1984. Physiological, Psychological, and Social Effects of Noise. NASA Reference Publication Vol 1115, No 446. July 1984.
- McKinnon, E. C., and T. R. Pratt, 1998. A Compilation of Water Quality and Pumpage Data for Select Wells in Santa Rosa, Okaloosa, Walton, and Bay County, Florida. Northwest Florida Water Management District Technical File Report 98-1. November 1998.
- Mitsch, W. J., and J. G. Gosselink, 2000. Wetlands, 3rd Edition. John Wiley & Sons, New York.
- Pearsons, K. S., D. S. Barber, B. G. Tabachnik, and S. Fidell, 1995. Predicting noise-induced sleep disturbance. *Journal of the Acoustical Society of America*, Vol 97, No 1, pp 331–338.
- Schultz, T. J., 1978. Synthesis of social surveys on noise annoyance. *Journal of the Acoustical Society of America*, Vol 64, No 2, pp 377–405.
- U.S. Air Force, 1998b. FY97 Range Utilization Report. 46 Test Wing Range Environmental Planning Office, Air Force Developmental Test Center, Eglin AFB, Florida. May 1998.
- U.S. Air Force, 2000. Test Area B-75 Final Programmatic Environmental Assessment. AAC 46 TW/XPE Range Environmental Planning Office, Eglin Air Force base, Florida. August 2000.
- U.S. Air Force, 2001. Eglin AFB Range General Plan. Range Planning Office (46TW/XPE), Eglin Air Force Base, Florida. 2001.
- U.S. Air Force, 2002. Integrated Natural Resources Management Plan 2002-2006. AAC/EMSN, Eglin AFB, Florida. May 2002.
- U.S. Air Force, 2003. Test Areas B-71 and B-82 Final Programmatic Environmental Assessment. Air Armament Center, 46 TW/XPE, Range Environmental Planning Office. Eglin AFB, Florida. March 2003.
- U.S. Air Force, 2003a. Environmental Baseline Study Resource Appendices, Volume I – Eglin Land Test and Training Range. Air Armament Center, Eglin Air Force Base. December 2003.
- U.S. Air Force, 2003b. Programmatic Agreement between the Air Armament Center, Eglin Air Force Base, The Advisory Council on Historic Preservation and the Florida State Historic Preservation Officer Regarding the Preservation and Protection of Historical and Archaeological Resources Located at Eglin Air Force Base, Florida. Executed 14 February 2003.
- U.S. Air Force, 2004. Cultural Resource Management Program. Air Force Instruction 32-7065. 1 June 2004.
- U.S. Air Force, 2005. Spill Prevention, Control, and Countermeasures (SPCC) Plan. Department of the Air Force, Eglin Air Force Base, Florida.
- U.S. Air Force, 2006. Threatened and Endangered Species Component Plan, Eglin AFB, FL. 96 CEG/CEVSN.

References

- U.S. Air Force, 2006a. Air Armament Center (AAC) Instruction 32-7003: Hazardous Waste Management Plan.
- U.S. Air Force, 2006b. Eglin Air Force Base Integrated Cultural Resource Management Plan Implementation. February 2006.
- U.S. Air Force, 2007. Test Areas B-71 and B-82 Final Environmental Baseline Document, Revision 1. 96 CEG/CEVSP, Environmental Planning Section. Eglin AFB, Florida. February 2007.
- U.S. Air Force, 2007b. Air Force Instruction 13-212, Chapter 3, Range Planning. AF-A30/AR, U.S. Air Force. November.
- U.S. Air Force, 2007c. Final Integrated Natural Resources Management Plan. Eglin Air Force Base, Florida. September 2007.
- U.S. Air Force, 2008. U.S. Fish and Wildlife Service Formal Endangered Species Act Section 7 Consultation for the Eastern Indigo Snake. Programmatic Biological Assessment. March 2008.
- U.S. Air Force, 2010. Draft-Final Threatened and Endangered Species Component Plan Update. February 2010.
- U.S. Army Corps of Engineers (USACE), 1987. Wetlands Delineation Manual. Washington, D.C.
- U.S. Army Corps of Engineers (USACE), 2002. Archives Search Report for Legacy Debris Pits at Eglin Air Force Base. Department of the Air Force AFDTC/EMR. Eglin AFB, Florida. April 2002.
- U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), 2005. Operational Noise Management: An Orientation Handbook for Army Facilities. November 2005.
- U.S. Army, 1997. Army Regulation 200-1, Environmental Protection and Enhancement. February 1997.
- U.S. Army, 2006. Management Guidelines for the Red-cockaded woodpecker on Army Installations.
- U.S. Army, 2007. Environmental Protection and Enhancement Army Regulation 200-1. 13 December 2007.
- U.S. Department of Agriculture (USDA), 1995. Soil Survey of Okaloosa County, Florida. Soil Conservation Service.
- U.S. Environmental Protection Agency (USEPA), 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Office of Noise Abatement and Control. EPA Report 550/9-74-004.
- U.S. Environmental Protection Agency (USEPA), 1981. Noise Effects Handbook: A Desk Reference to Health and Welfare Effects of Noise. Office of Noise Abatement and Control. EPA 500-9-82-106
- U.S. Environmental Protection Agency (USEPA), 1995. America's Wetlands: Our Vital Link Between Land and Water.
- U.S. Environmental Protection Agency (USEPA), 2002. U.S. Environmental Protection Agency 2002 National Emissions Inventory Microsoft Access Database. Retrieved from <http://www.epa.gov/ttn/chief/net/2002inventory.html#inventorydata>, May 2006.
- U.S. Environmental Protection Agency (USEPA), 2005. Transportation and Air Quality. Retrieved from <http://www.epa.gov/otaq/> on 10 February 2005.

References

- U.S. Environmental Protection Agency (USEPA), 2006. Clean Water Act, Section 401 Certification. Retrieved from <http://www.epa.gov/OWOW/wetlands/regs/sec401.html> on 5 August 2008.
- U.S. Fish and Wildlife Service (USFWS), 1979. National Wetlands Inventory Classification for Wetlands and Deepwater Habitats of the United States.
- U.S. Fish and Wildlife Service (USFWS), 2008. Personal communication between Eglin AFB and USFWS toxicologist Dr. Jon Hemming. 5 February 2008.
- U.S. Navy, 2005. Guidelines for Sound Insulation of Residences Exposed to Aircraft Operations. Naval Facilities Engineering Command. April 2005.
- Utah Test and Training Range (UTTR), 2002. Attachment 11: Noise Prediction, Mitigation and Management Program. Issued 13 February 2002.
- Walsh, L., 2009. Personal communication via email between Lois A. Walsh (96 ABW/PA) and Pamela McCarty (SAIC) regarding Noise Complaint Data for Eglin AFB on 22 August 2009.

APPENDIX A

RELEVANT LAWS, REGULATIONS, AND POLICIES

The Range Environmental Assessment was prepared with consideration and compliance of relevant environmental laws, regulations, and policies; including federal and state laws and regulations, Department of Defense (DoD) directives, and Air Force Instructions (AFI). A brief description of specific laws and regulations that legally define issues of compliance associated with the mission activities of this document are outlined below.

General

42 U.S. Code (USC) 4321 et seq; 1969; National Environmental Policy Act of 1969 (NEPA); Requires that federal agencies (1) consider the consequences of an action on the environment before taking the action and (2) involve the public in the decision making process for major Federal actions that significantly affect the quality of the human environment.

Executive Order (EO) 12372; 14-Jul-82; Intergovernmental Review of Federal Programs; Directs federal agencies to inform states of plans and actions, use state processes to obtain state views, accommodate state and local concerns, encourage state plans, and coordinate states' views.

EO 12856; 3-Aug-93; Right-to-Know Laws and Pollution Prevention Requirements; Directs all Federal agencies to incorporate pollution planning into their operations and to comply with toxic release inventory requirements, emergency planning requirements, and release notifications requirements of Emergency Planning and Community Right-to-Know Act (EPCRA).

EO 12898; 11-Feb-94; Environmental Justice; Directs federal agencies to identify disproportionately high and adverse human health or environmental impacts resulting from programs, activities or policies on minority populations.

Air Force Policy Directive 32-70; 20-Jul-94; Environmental Quality; Develops and implements the Air Force Environmental Quality Program composed of cleanup, compliance, conservation, and pollution prevention.

AFI 32-7045; 1-Apr-94; Environmental Compliance and Assessment; Implements AFPD 32-70 by providing for an annual internal self-evaluation and program management system to ensure compliance with Federal, State, local, DoD, and Air Force environmental laws and regulations.

32 Code of Federal Regulations (CFR) 989; 1-Jul-01; Environmental Impact Analysis Process (EIAP)--; This regulation provides a framework for how the Air Force is to comply with NEPA and the CEQ regulations.

AFI 32-7062; 1-Apr-94; Air Force Comprehensive Planning; Implements AFPD 32-70 by establishing Air Force Comprehensive Planning Program for development of Air Force Installations, ensuring that natural, cultural, environmental, and social science factors are considered in planning and decision making.

Physical Resources

Air Quality

42 USC 7401 et seq.; 40 CFR Parts 50 & 51; Clean Air Act, National Ambient Air Quality Standards (CAA, NAAQS); Emission sources must comply with air quality standards and regulations established by federal, state, and local regulatory agencies.

Air Force Policy Directive 32-70; 20-Jul-94; Environmental Quality; Develops and implements the Air Force Environmental Quality Program composed of cleanup, compliance, conservation, and pollution prevention. Implements Clean Air Act.

AFI 32-7040; 9-May-94; Air Quality Compliance; This AFI sets forth actions for bases to implement to achieve and maintain compliance with applicable standards for air quality compliance, and responsibilities for who is to implement them. Includes requirements for NEPA and RCRA as well as CAA.

F.S. Ch. 403, Part I; Florida Air and Water Pollution Control Act; Regulates air pollution within the state.

Florida Administrative Code (FAC) Chap. 62-204; Florida State Implementation Plan, with Ambient Air Quality Standards and PSD Program; Establishes state air quality standards and requirements for maintaining compliance with NAAQS.

FAC Chap. 62-213; Operation Permits for Major Sources of Air Pollution; Adopted Prevention of Significant Deterioration (PSD) permit program, designed to control the impact of economic growth on areas that are already in attainment.

Air Space Use

49 USC 106 & Subtitle VII; 1997; Federal Aviation Act of 1958 (FAA); Created the FAA and establishes administrator with responsibility of ensuring aircraft safety and efficient utilization of the National Airspace System.

14 CFR Part 71; 1997; Federal Aviation Regulation (FAR); Defines federal air routes, controlled airspace, and flight locations for reporting position.

14 CFR Part 73; 1997; Federal Aviation Regulation (SFAR No. 53); Defines and prescribes requirements for special use airspace.

14 CFR Part 91; 1997; Federal Aviation Regulation (FAR); Governs the operation of aircraft within the United States, including the waters within 3 nautical miles of the U.S. Coast. In addition, certain rules apply to persons operating in airspace between 3 and 12 nautical miles from the U.S. Coast.

Land Resources

16 USC 670a to 670o; 1997; Sikes Act, Conservation Programs on Military Reservations; DoD, in a cooperative plan with DOI and State, opens AF bases to outdoor recreation, provides the state with a share of profits from sale of resources (timber), and conserves and rehabilitates wildlife, fish, and game on each reservation. AF is to manage the natural resources of its reservations to provide for sustained multipurpose use and public use.

16 USC 1451 to 1465; 1997; Coastal Zone Management Act of 1972 (CZMA); Federal agency activities in coastal zones should be consistent with state management plans to preserve and protect coastal zones. Lands for which the Federal Government has sole discretion or holds in trust are excluded from the coastal zone.

USC 1701 et seq., Public Law 94-579; 1997; Federal Land Policy and Management Act of 1976 (FLPMA); Provides that the Sec. of Interior shall develop land use plans for public lands within BLM jurisdiction to protect scientific, scenic, historical, ecological, environmental and archeological values, and to accommodate needs for minerals, food and timber.

16 USC 3501 to 3510; 1997; Coastal Barrier Resources Act (CBRA); Limits Federal expenditure for activities on areas within the Coastal Barrier Resources System. An exception is for military activities essential to national security, after the Federal agency consults with the Secretary of the Interior.

AFI 32-7062; 1-Apr-94; Air Force Comprehensive Planning; Implements AFD 32-70 by establishing Air Force Comprehensive Planning Program for development of Air Force Installations, ensuring that natural, cultural, environmental, and social science factors are considered in planning and decision making.

AFI 32-7063; 31-Mar-94; Air Installation Compatible Use Zone Program (AICUZ); Provides a framework to promote compatible development within area of AICUZ area of influence and protect Air Force operational capability from the effects of land use which are incompatible with aircraft operations.

AFI 32-7064 22-Jul-94; Integrated Natural Resources Management; Provides for development of an integrated natural resources management plan to manage the installation ecosystem and integrate natural resources management with the rest of the installation's mission. Includes physical and biological resources and uses.

Noise

42 USC 4901 to 4918, Public Law 92-574; 1972; Noise Control Act of 1972 (NCA); Provides that each Federal agency must comply with Federal, State, interstate and local requirements for control and abatement of environmental noise.

49 USC 44715; 1997; Controlling Aircraft Noise and Sonic Boom; Provides that the Federal Aviation Administration will issue regulations in consultation with the USEPA to control and abate aircraft noise and sonic boom.

EO 12088; 1978; Federal Compliance with Pollution Control Standards; Requires the head of each executive agency to take responsibility for ensuring all actions have been taken to prevent, control, and abate environmental (noise) pollution with respect to federal activities.

AFI 32-7063; 1-Mar-94; Air Installation Compatible Use Zone Program (AICUZ); The AICUZ study defines and maps noise contours. Update when noise exposure in air force operations results in a change of Day-Night Average Sound Level of 2 decibels (dBs) or more as compared to the noise contour map in the most recent AICUZ study.

Water Resources

33 USC 426, 577, 577a, 595a; 1970; River and Harbor Act of 1970 (RHA); Keeps navigable waterways open, authorizing the Army Corps of Engineers to investigate and control beach erosion and to undertake river and harbor improvements.

33 USC 1251 et seq.; 1997; Clean Water Act (CWA) (Water Pollution Prevention and Control Act, FWPCA); In addition to regulating navigable water quality, the CWA establishes NPDES permit program for discharge into surface waters and storm water control; Army Corps of Engineers permit and state certification for wetlands disturbance; regulates ocean discharge; sewage wastes control; and oil pollution prevention.

33 USC 1344-Section 404; 1997; Federal Water Pollution Control Act/Clean Water Act (FWPCA/CWA), Dredged or Fill Permit Program; Regulates development in streams and wetlands by requiring a permit from the Army Corps of Engineers for discharge of dredged or fill material into navigable waters. A Section 401 (33 USC 1341) Certification is required from the State as well.

42 USC 300f et seq.; 1997; Safe Drinking Water Act (SDWA); EPA-Requires the promulgation of drinking water standards, or MCLs, which are often used as cleanup values in remediation; establishes the underground injection well program; and establishes a wellhead protection program.

42 USC 6901 et seq.; 29-May-05; RCRA of 1976; Establishes standards for management of hazardous waste so that water resources are not contaminated: RCRA Corrective Action Program requires cleanup of ground water that has been contaminated with hazardous constituents.

42 USC 9601 et seq., Public Law 96-510; 11-Dec-80; Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA); Establishes the emergency response and remediation program for water and ground water resources contaminated with hazardous substances.

EO 12114, 44 FR, No. 62; 01-04-79; Environmental Effects Abroad of Major Federal Actions. Activities outside the jurisdiction of the United States which significantly harm the natural or physical environment shall be evaluated. An EIS shall be prepared for major federal actions having significant environmental effects within the global commons (i.e., Antarctica, oceans).

DoD Directive 6050.7; 03-31-79; Environmental Effects Abroad of Major Department of Defense Actions. Implements Executive Order 12114.

Air Force Policy Directive 32-70; 20-Jul-94; Environmental Quality; Develops and implements the Air Force Environmental Quality Program composed of cleanup, compliance, conservation, and pollution prevention. Implements Clean Water Act, Safe Drinking Water Act, and Water Quality Act of 1987.

AFI 32-7006 04-29-94; Environmental Program in Foreign Countries; Implements DoD Directive 6050.7.

AFI 32-7041; 13-May-94; Water Quality Compliance; Instructs the Air Force on maintaining compliance with the Clean Water Act; other federal, state, and local environmental regulations; and related DoD and AF water quality directives.

AFI 32-7064; 22-Jul-94; Integrated Natural Resources Management; Sets forth requirements for addressing wetlands, floodplains and coastal and marine resources in an integrated natural resources management plan (INRMP) for each installation.

F.S. Chaps. 253, 258; Florida Aquatic Preserves Act; Establishes state aquatic preserves.

F.S. Chap. 403, Part I; Florida Air and Water Pollution Control Act; establishes the regulatory system for water resources in the State of Florida.

FAC Chap. 62-302; Surface Water Quality Standards; Classify Florida surface waters by use. Identify Outstanding Florida Waters.

FAC Chap. 62-312; Florida Dredge and Fill Activities; Requires a State permit for dredging and filling conducted in, on, or over the surface waters of the State.

Biological Resources

Animal Resources

16 USC 668 to 668d; 1995; Bald and Golden Eagle Protection Act (BGEPA); Makes it illegal to take, possess, sell, barter, offer to sell, transport, export or import Bald and Golden eagles in the United States. Taking may be allowed for scientific, exhibition, or religious purposes, or for seasonal protection of flocks.

16 USC 703 - 712; 1997; Migratory Bird Treaty Act (MBTA); Makes it illegal to take, kill or possess migratory birds unless done so in accordance with regulations. An exemption may be obtained from the Dept. of the Interior for taking a listed migratory bird.

16 USC 1361 et seq.; 1997; Marine Mammal Protection Act of 1972, as amended (MMPA); Makes it illegal for any person to “take” a marine mammal, which term includes significantly disturbing a habitat, unless activities are conducted in accordance with regulations or a permit.

AFI 32-7064; 22-Jul-94; Integrated Natural Resources Management; Explains how to manage natural resources on Air Force property, and to comply with Federal, State, and local standards for resource management.

EO 13112; 1999; Instructs federal agencies to monitor for, control, and prevent the introduction of non-native, invasive species of plants and animals.

EO 13186; 2001; Directs federal agencies whose actions may affect migratory birds to establish and implement a Memorandum of Understanding with the U.S. Fish and Wildlife Service (USFWS) to promote the conservation of migratory birds.

DoD and USFWS Memorandum of Understanding; 2006; Requires the DoD to acquire permits for normal and routine operations, such as installation support functions, that may result in pursuit, hunting, taking, capturing, killing, possession, or transportation of any migratory bird.

50 CFR 21; 2007; Exempts the Armed Forces from the incidental taking of migratory birds during military readiness activities, except in cases where an activity would likely cause a significant adverse effect on the population of a migratory bird species. In this situation, the Armed Forces, in cooperation with the USFWS, must develop and implement conservation measures to mitigate or minimize the significant adverse impacts.

Threatened & Endangered Species

16 USC 1361 et seq., Public Law 92-574; 1997; Marine Mammal Protection Act of 1972, as amended (MMPA); Makes it illegal for a person to “take” a marine mammal, which term includes significantly disturbing the habitat, unless done in accordance with regulations or a permit.

16 USC 1531 to 1544-16 USC 1536(a); 1997; Endangered Species Act 1973 (ESA); Federal agencies must ensure their actions do not jeopardize the continued existence of any endangered or threatened species or destroy or adversely modify the habitat of such species and must set up a conservation program.

50 CFR Part 402; Endangered Species Act Interagency Cooperation; These rules prescribe how a Federal agency is to interact with either the FWS or the NMFS in implementing conservation measures or agency activities.

50 CFR Part 450; Endangered Species Exemption Process; These rules set forth the application procedure for an exemption from complying with Section 7(a)(2) of the ESA, 16 USC 1536(a)(2), which requires that Federal agencies ensure their actions do not affect endangered or threatened species or habitats.

Air Force Policy Directive 32-70; 20-Jul-94; Environmental Quality; Develops and implements the Air Force Environmental Quality Program composed of cleanup, compliance, conservation, and pollution prevention. Implements Endangered Species Act.

AFI 32-7064; 22-Jul-94; Integrated Natural Resources Management; This AFI directs an installation to include in its INRMP procedures for managing and protecting endangered species or critical habitat, including State-listed endangered, threatened or rare species; and discusses agency coordination.

Human Safety

29 CFR 1910.120; Occupational Safety and Health Act, Chemical Hazard Communication Program (OSHA); Requires that chemical hazard identification, information and training be available to employees using hazardous materials and institutes material safety data sheets (MSDS) which provide this information.

DoD Instruction 6055.1; Establishes occupational safety and health guidance for managing and controlling the reduction of radio frequency exposure.

DoD Flight Information Publication; Identifies regions of potential hazard resulting from bird aggregations or obstructions, military airspace noise sensitive locations, and defines airspace avoidance measures.

AFI 13-212v1 and v2; 1994; Weapons Ranges and Weapons Range Management; Establishes procedures for planning, construction, design, operation, and maintenance of weapons ranges as well as defines weapons safety footprints, buffer zones, and safest procedures for ordnance and aircraft malfunction.

AFI 32-2001; 16-May-94; The Fire Protection Operations and Fire Prevention Program; Identifies requirements for Air Force fire protection programs (equipment, response time, and training).

AFI 32-7063; 1-Mar-94; Air Installation Compatible Use Zone Program (AICUZ). The AICUZ Study defines and maps accident potential zones and runway clear zones around the installation, and contains specific land use compatibility recommendations based on aircraft operational effects and existing land use, zoning and planned land use.

Air Force Manual 91-201; 12-Jan-96; Explosives Safety Standards; Regulates and identifies procedures for explosives safety and handling as well as defining requirements for ordnance quantity distances, safety buffer zones, and storage facilities.

AFI 91-301; 1-Jun-96; Air Force Occupational and Environmental Safety, Fire Protection and Health (AFOSH) Program; Identifies occupational safety, fire prevention, and health regulations governing Air Force activities and procedures associated with safety in the workplace.

Habitat Resources

EO 11990; 24-May-77; Protection of Wetlands; Requires federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in their activities. Construction is limited in wetlands and requires public participation.

EO 11988; 24-May-77; Floodplain Management; Directs Federal agencies to restore and preserve floodplains by performing the following in floodplains: not supporting development; evaluating effects of potential actions; allowing public review of plans; and considering in land and water resource use.

Air Force Policy Directive 32-70; 20-Jul-94; Environmental Quality; Develops and implements the Air Force Environmental Quality Program composed of cleanup, compliance, conservation, and pollution prevention. Implements Executive Order 11988 and 11990.

*Anthropogenic Resources**Hazardous Materials*

7 USC 136 et seq., Public Law 92-516; 1997; Federal Insecticide, Fungicide, and Rodenticide Act Insecticide and Environmental Pesticide Control (FIFRA); Establishes requirements for use of pesticides that may be relevant to activities at Eglin Air Force Base.

42 USC Sect. 2011 - Sect. 2259; Atomic Energy Act (AEA); Assure the proper management of source, special nuclear, and byproduct material.

42 USC 6901 et seq.; 1980; RCRA of 1976 and Solid Waste Disposal Act of 1980; Subchapter III sets forth hazardous waste management provisions; Subchapter IV sets forth solid waste management provisions; and Subchapter IX sets forth underground storage tank provisions; with which Federal agencies must comply.

42 USC 9601 et seq., Public Law 96-510; 1997; Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA); Establishes the liability and responsibilities of federal agencies for emergency response measures and remediation when hazardous substances are or have been released into the environment.

42 USC 11001 to 11050; Emergency Planning and Community Right-to-Know Act (EPCRA); Provides for notification procedures when a release of a hazardous substance occurs; sets up community response measures to a hazardous substance release; and establishes inventory and reporting requirements for toxic substances at all facilities.

42 USC 13101 to 13109; 1990; Pollution Prevention Act of 1990 (PPA); Establishes source reduction as the preferred method of pollution prevention, followed by recycling, treatment, then disposal into the environment. Establishes reporting requirements to submit with EPCRA reports. Federal agencies must comply.

Air Armament Center Plan 32-3; January 2004; Asbestos Management Plan; This plan establishes procedures for the Eglin Air Force Base (AFB) facility asbestos management program. It contains the policies and procedures used in controlling the health hazards created by asbestos containing materials (ACM), and the procedures used in ACM removal required to protect the health of personnel and to comply with applicable federal, state, and Air Force laws and inspections.

Air Armament Center Plan 32-4; January 2004. Lead-Based Paint Management Plan; This plan establishes procedures for the Eglin AFB lead-based paint management program. It contains policies and procedures used in controlling health hazards from exposure to lead-based paint.

Air Armament Center Plan 32-7; February 2003; Integrated Solid Waste Management Plan; The Eglin AFB Integrated Solid Waste Management Plan documents guidance and procedures with regard to regulatory compliance

in the handling, reduction, recycling and disposal of solid waste. It contains requirements necessary to reach the mandated incremental waste diversion goal of 40 percent diversion of municipal solid waste from landfill disposal by FY2005. These policies and procedures are designed to preserve landfill space, increase recycling and reuse, address revenues and cost avoidance, provide pollution prevention alternatives and promote Affirmative Procurement. This plan draws from the aspects of two programs, the Integrated Solid Waste Management Program (ISWMP) and the Qualified Recycling Program (QRP).

AAC Plan 32-9; February 2003; Hazardous Materials Management Plan; The Eglin AFB Hazardous Material Management Plan (HMMP) documents existing policy and procedures for organizations requesting, procuring, issuing, handling, storing and disposing of hazardous material (HM) in accomplishment of the Air Armament Center (AAC) mission. These policies provide guidance for compliance with federal, state, and local occupational safety, health, and environmental regulations.

Air Force Policy Directive 32-70; 20-Jul-94; Environmental Quality; Provides for developing and implementing an Air Force Environmental Quality Program composed of four pillars: cleanup, compliance, conservation and pollution prevention. Implements Resource Recovery and Conservation Act, Comprehensive Environment Response Compensation and Liability Act of 1980, Emergency Planning and Community Right-to-Know Act, Pollution Prevention Act, Executive Order 12088, Executive Order 12777, and Executive Order 12586. Implements DoD Instruction 4120.14, DoD Directive 4210.15, and DoD Directive 5030.41.

AAC Instruction 32-7003; 26July2004; Hazardous Waste Management; This instruction is intended to provide a framework for complying with environmental standards applicable to Hazardous Waste (HW), Universal Waste (UW), Special Waste (SW) and used petroleum products on Eglin AFB.

AFI 32-7020; 19-May-94; The Environmental Restoration Program; Introduces the basic structure and components of a cleanup program under the Defense Environmental Restoration Program. Sets forth cleanup program elements, key issues, key management topics, objectives, goals, and scope of the cleanup program.

AFI 32-7042; 12-May-94; Solid and Hazardous Waste Compliance; Provides that each installation must develop a hazardous waste (HW) and a solid waste (SW) management plan; characterize all HW streams; and dispose of them in accordance with the AFI. Plans must address pollution prevention as well.

AFI 32-7080; 12-May-94; Pollution Prevention Program; Each installation is to develop a pollution prevention management plan that addresses ozone depleting chemicals; EPA 17 industrial toxics; hazardous and solid wastes; obtaining environmentally friendly products; energy conservation, and air and water.

Air Force Policy Directive 40-2; 8-Apr-93; Radioactive Materials; Establishes policy for control of radioactive materials, including those regulated by the US Nuclear Regulatory Commission (NRC), but excluding those used in nuclear weapons.

Cultural Resources

10 USC 2701 note, Public Law 103-139; 1997; Legacy Resource Management Program (LRMP); Provides funding to conduct inventories of all scientifically significant biological assets of Eglin AFB.

16 USC 431 et seq.; PL 59-209; 34 Stat. 225; 43 CFR 3; 1906; Antiquities Act of 1906; Provides protection for archeological resources by protecting all historic and prehistoric sites on Federal lands. Prohibits excavation or destruction of such antiquities without the permission (Antiquities Permit) of the Secretary of the department that has the jurisdiction over those lands.

16 USC 461 to 467; 1997; Historic Sites, Buildings and Antiquities Act (HAS); Establishes national policy to preserve for public use historic sites, buildings and objects of national significance: the Secretary of the Interior operates through the National Park Service to implement this national policy.

16 USC 469 to 469c-1; 1997; Archaeological and Historic Preservation Act of 1974 (AHPA); Directs Federal agencies to give notice to the Sec. of the Interior before starting construction of a dam or other project that will alter the terrain and destroy scientific, historical or archeological data, so that the Sec. may undertake preservation.

16 USC 470aa-470mm, Public Law 96-95; 1997; Archaeological Resources Protection Act of 1979 (ARPA); Establishes permit requirements for archaeological investigations and ensures protection and preservation of archaeological sites on federal property.

16 USC 470 to 470w-6-16 USC 470f, 470h-2; 1997; National Historic Preservation Act (NHPA); Requires Federal agencies to (1) allow the Advisory Council on Historic Preservation to comment before taking action on properties eligible for the National Register and (2) preserve such properties in accordance with statutory and regulatory provisions.

25 USC 3001 - 3013), (Public Law 101-601; 1997; Native American Graves Protection and Repatriation Act of 1991 (NAGPRA); Federal agencies must obtain a permit under the Archeological Resources Protection Act before excavating Native American artifacts. Federal agencies must inventory and preserve such artifacts found on land within their stewardship.

42 USC 1996; American Indian Religious Freedom Act (AIRFA); Federal agencies should do what they can to ensure that American Indians have access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites in the practice of their traditional religions.

32 CFR Part 200; Protection of Archaeological Resources: Uniform Regulations; Provides that no person may excavate or remove any archaeological resource located on public lands or Indian lands unless such activity is conducted pursuant to a permit issued under this Part or is exempted under this Part.

36 CFR Part 60; Nominations to National Register of Historic Places; Details how the Federal agency Preservation Officer is to nominate properties to the Advisory Council for consideration to be included on the National Register.

36 CFR Part 800; Protection of Historic and Cultural Properties; Sets out the Section 106 process for complying with Sections 106 and 110 of the NHPA: the Agency official, in consultation with the SHPO, identifies and evaluates affected historic properties for the Advisory Council.

EO 11593, 16 USC 470; 13-May-71; Protection and Enhancement of the Cultural Environment; Instructs federal agencies to identify and nominate historic properties to the National Register, as well as avoid damage to Historic properties eligible for National Register.

EO 13007; 24-May-96; Directs federal agencies to provide access to and ceremonial use of sacred Indian sites by Indian religious practitioners as well as promote the physical integrity of sacred sites.

DoD Directive 4710.1; Archaeological and Historic Resources Management (AHRM); Establishes policy requirements for archaeological and cultural resource protection and management for all military lands and reservations.

Air Force Policy Directive 32-70; 20-Jul-94; Environmental Quality; Develops and implements the Air Force Environmental Quality Program composed of cleanup, compliance, conservation, and pollution prevention. Implements National Historic Preservation Act, Executive Order 11593, and DoD Directive 470.1.

AFI 32-7065; 13-Jun-94; Cultural Resource Management; Directs AF bases to prepare CRM plans to comply with historic preservation requirements, Native American considerations; and archeological resource protection requirements, as part of the Base Comprehensive Plan.

Air Force Policy Letter; 4-Jan-82; Establishes Air Force policy to comply with historic preservation and other federal environmental laws and directives.

APPENDIX B
TEST SITE DESCRIPTIONS

TEST SITE DESCRIPTIONS

PHYSICAL DESCRIPTION

Test Area B-71

TA B-71 is located approximately 8 miles west of Eglin Main and about 4 miles north of Wright, Florida. The primary entrance into the test area is Range Road 250, which is positioned across the test area in a north-south direction. Range Road 232 enters the test area from the northeast and forms a dead end junction with Range Road 250. The test area is maintained by mowing. Trees are located on the test area on either side of Range Road 250. The dominant feature of the test area is Test Target (TT) -1, a gridded asphalt area 2,000 by 4,500 feet, used to test submunition or bomblets. More information on TA B-71 targets is provided later in this section. A railroad track, approximately 1.5 miles long, is located about 0.75 miles from the southeast border of the test area. The area southeast of the railroad track has been reforested with planted pines. There are no natural surface waters (i.e., creeks, streams, or ponds) directly on this test area. The soils of this test area are sandy, well drained, and yellowish-brown in color. The terrain is uneven, varying from 100 to 170 feet above sea level with most of the area at approximately 125 feet elevation. The vegetation on TA B-71 is primarily grasses with mixed shrubs.

Test Area B-82

TA B-82 is located approximately 9 miles west of Eglin Main and is about 0.5 mile northwest of TA B-71. Range Road 239 runs across the test area in a northeast-southwest direction and Range Road 665 runs across the test area in a north-south direction. The dominant features of this test area consist of a fenced 4,000- by 6,000-foot target area with a 1,000- by 6,000-foot clay/sand center drop zone, a fenced compound area including control and storage buildings, and two surveillance areas for observation of long-delay fuze activation or function. The clay/sand center drop zone was once coated with a spray-on bituminous surface, but the surface is now primarily sand with scattered shrubs. The terrain is reasonably flat with an average elevation of 175 feet. The soils on TA B-82 are of the Lakeland Association series. The vegetation consists of pines, turkey oaks, and live oaks. The ground cover is predominately grasses, eastern bracken fern, and gopher apple. Turtle Creek is adjacent to the southeastern border of the test area.

The primary entry to TA B-82 is from Range Road 239 from TA B-71. TA B-82 consists of one large fenced test area that is 4,000 feet by 6,000 feet with an additional fenced compound area including control and storage buildings.

TARGETS

Test Area B-71

TT-1 is a gridded asphalt area used in the past for submunition testing. It is currently used for ground warhead effects and IM testing. Various types of IM testing supported include fast cook-off (FCO), slow cook-off, and fragment impact and bullet impact. TT-2 is a 1,200-square-

foot shallow water mine countermeasures test site that contains a ship motion platform with six degrees of freedom. The shallow water mine countermeasures test area is designed to demonstrate the feasibility of deploying distributed explosives from a seaborne craft into the surf zone using rocket motors. TT-2 is currently inoperable. There are two large FCO pans on the asphalt grid that were designed for reusability. The original (and smallest) pan is approximately 30 feet by 40 feet including a 2 foot water moat on all sides. The large FCO pan has an outer measurement of 50 feet by 70 feet (2 foot moat included). Both pans rest on a 2 feet thick reinforced concrete slab. In addition, the large pan has a fuel liner installed on all sides of the concrete slab extending out 15 feet and going down approximately 2 feet. TT-3 is a Joint Munition Effectiveness Manual testing area 200 by 725 feet, formerly used to evaluate the effectiveness of incendiary weapons; it is currently inactive. TT-4 is another incendiary weapons testing area located adjacent to TT-3. TT-4 is no longer used. TT-16 consisted of an array of vehicles that were placed on TT-1 when needed. TT-1 is active, and TT-2, TT-3, and TT-4 are inactive.

Other unnumbered targets that may be used on TA B-71 in support of specific test programs include vehicle target arrays, billboards, cloth “Xs” on the ground, and temporary structures.

Test Area B-82

There are eight new hard targets on TA B-82. Completed in 2010, the targets have not been added to the plan in place drawings that InDyne continually updates. A 40- by 40-foot hard target was constructed in 2004 and was used for a Wind Corrected Munition Dispenser test. Temporary targets may be used on TA B-82 and are positioned as required. These include terminal effects items, billboards, cloth Xs, and temporary structures.

APPENDIX C

AIR QUALITY

SUPPLEMENTAL INFORMATION

AIR QUALITY SUPPLEMENTAL INFORMATION

This appendix provides a general overview of the federal and state regulatory air quality programs. Additionally, the appendix discusses emission factor development and calculations including assumptions employed in the air quality analyses presented in the Air Quality sections of this REA.

AIR QUALITY PROGRAM OVERVIEW

In order to protect public health and welfare, the USEPA has developed numerical concentration-based standards, or NAAQS, for six “criteria” pollutants (based on health related criteria) under the provisions of the Clean Air Act (CAA) Amendments of 1970. There are two kinds of NAAQS: Primary standards and Secondary standards. Primary standards prescribe the maximum permissible concentration in the ambient air to protect public health including the health of “sensitive” populations such as asthmatics, children, and the elderly. Secondary standards prescribe the maximum concentration, or level of air quality, required to protect public welfare including protection against decreased visibility, damage to animals, crops, vegetation, and buildings (Government Printing Office, no date).

The CAA gives states the authority to establish air quality rules and regulations. These rules and regulations must be equivalent to, or more stringent than, the federal program. The Division of Air Resource Management within the Florida Department of Environmental Protection (FDEP) administers the state’s air pollution control program under authority of the Florida Air and Water Pollution Control Act and the Environmental Protection Act.

Florida has adopted the NAAQS as written in the federal regulations (40 Code of Federal Regulations [CFR] Part 51) except Florida has established a more conservative standard for sulfur dioxide (SO₂). The USEPA has set the annual and 24-hour standards for SO₂ at 0.03 ppm (80 micrograms per cubic meter [μg/m³]) and 0.14 ppm (365 μg/m³), respectively. Florida has adopted the more stringent annual and 24-hour standards of 0.02 ppm (60 μg/m³) and 0.1 ppm (260 μg/m³), respectively. In addition, Florida has adopted the national secondary standard of 0.50 ppm (1300 μg/m³). Federal and state of Florida ambient air quality standards are presented in Table C-1.

Based on measured ambient air pollutant concentrations, the USEPA designates areas of the United States as having air quality better than the NAAQS (attainment), worse than the NAAQS (nonattainment), and unclassifiable. Those that cannot be classified on the basis of available information as meeting or not meeting the NAAQS for a particular pollutant are “unclassifiable” and are treated as attainment until proven otherwise. Attainment areas can be further classified as “maintenance” areas. Maintenance areas are those areas previously classified as nonattainment that have successfully reduced air pollutant concentrations to below the standard. Maintenance areas are under special maintenance plans and must operate under some of the nonattainment area plans to ensure compliance with the NAAQS. All areas of the state of Florida are in compliance with the NAAQS.

Table C-1. National and State Ambient Air Quality Standards

Criteria Pollutant	Averaging Time	Federal Primary NAAQS ⁸	Federal Secondary NAAQS ⁸	Florida Standards
Carbon Monoxide (CO)	8-hour ¹	9 ppm (10 mg/m ³)	No standard	9 ppm (10 µg/m ³)
	1-hour ¹	35 ppm (40 mg/m ³)	No standard	35 ppm (40 µg/m ³)
Lead (Pb)	Quarterly	1.5 µg/m ³	1.5 µg/m ³	1.5 µg/m ³
Nitrogen Dioxide (NO ₂)	Annual	0.053 ppm (100 µg/m ³)	0.053 ppm (100 µg/m ³)	0.053 ppm (100 µg/m ³)
Particulate Matter <10 Micrometers (PM ₁₀)	24-hour ²	150 µg/m ³	150 µg/m ³	50 µg/m ³
Particulate Matter <2.5 Micrometers (PM _{2.5})	Annual ³	15 µg/m ³	15 µg/m ³	150 µg/m ³
	24-hour ⁴	35 µg/m ³	35 µg/m ³	15 µg/m ³
Ozone (O ₃)	1-hour ⁷	0.12 ppm (235 µg/m ³)	0.12 ppm (235 µg/m ³)	65 µg/m ³ 0.12 ppm
	8-hour ⁵	0.075 ppm (2008 std)		(235 µg/m ³)
	8-hour ⁶	0.08 ppm (1997 std) (157 µg/m ³)	0.08 ppm (157 µg/m ³)	
Sulfur Dioxide (SO ₂)	Annual	0.03 ppm (80 µg/m ³)	No standard	0.02 ppm (60 µg/m ³)
	24-hour ¹	0.14 ppm (365 µg/m ³)	No standard	0.10 ppm (260 µg/m ³)
	3-hour ¹	No standard	0.50 ppm (1300 µg/m ³)	0.50 ppm (1300 µg/m ³)

Source: USEPA, 2008 (Federal Standards); FDEP, 1996 (Florida Standards)

ppm = parts per million; mg/m³ = milligrams per cubic meter; µg/m³ = micrograms per cubic meter

(1) Not to be exceeded more than once per year.

(2) Not to be exceeded more than once per year on average over three years.

(3) To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.

(4) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³ (effective 17 December 2006).

(5) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective 27 May 2008).

(6) (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

(b) The 1997 standard and the implementation rules for that standard will remain in place for implementation purposes as the USEPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.

(7) (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.

(b) As of June 15, 2005, the USEPA revoked the 1-hour ozone standard in all areas except the 8-hour ozone nonattainment Early Action Compact (EAC) Areas.

Each state is required to develop a state implementation plan (SIP) that sets forth how CAA provisions will be imposed within the state. The SIP is the primary means for the implementation, maintenance, and enforcement of the measures needed to attain and maintain the NAAQS within each state and includes control measures, emissions limitations, and other provisions required to attain and maintain the ambient air quality standards. The purpose of the SIP is twofold. First, it must provide a control strategy that will result in the attainment and maintenance of the NAAQS. Second, it must demonstrate that progress is being made in attaining the standards in each nonattainment area.

Florida has a statewide air quality-monitoring network that is operated by the state (*FDEP State Air Monitoring Reports*). Ambient air quality data from these monitors are used to assess the regions' air quality in comparison to the NAAQS. The air quality is monitored for carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide. The monitors tend to be concentrated in areas with the largest population densities. Not all pollutants are monitored in all areas. The air quality monitoring network is used to identify areas where the ambient air quality standards are being violated and where plans are needed to reduce pollutant concentration levels to be in attainment with the standards; also included are areas where the ambient standards are being met but plans are necessary to ensure maintenance of acceptable levels of air quality in the face of anticipated population or industrial growth.

The end result of this attainment/maintenance analysis is the development of local and statewide strategies for controlling emissions of criteria air pollutants from stationary and mobile sources. The first step in this process is the annual compilation of the ambient air monitoring results, and the second step is the analysis of the monitoring data for general air quality exceedances of the NAAQS as well as pollutant trends.

The FDEP Northwest District operates monitors in several northwest counties, including Bay, Escambia, and Santa Rosa counties. Over the years of record there have been exceedances (pollutant concentration greater than the numerical standard) of a NAAQS; however, there has not been a violation (occurrence of more exceedances of the standard than is allowed within a specified time period) of an ambient standard (*FDEP State Air Monitoring Reports*). Currently, the state of Florida is attainment for all criteria pollutants.

PROJECT CALCULATIONS: AIR EMISSIONS

Regulatory Compliance Methodologies

Mission generated air emissions were analyzed to enable comparison to NAAQS and the cumulative impact to the air shed within the affected ROI. Activities occurring within TAs B-71 and B-82 that have the greatest potential to impact air quality are munitions and vehicle activities including particulate emissions resulting from the dust of unpaved roads and trails. Aircraft emissions have been omitted from this REA, since all aircraft emissions are addressed in the Air Operations Environmental Baseline Document. In order to conservatively estimate the potential impact of these operations with short-term ambient air quality, a "Closed Box Assessment" (CBA) was performed. Additionally, the annual emissions were compared to the USEPA 2002 NEI for the ROI. Both techniques are described below as well as the emissions calculations and project assumptions.

The Closed Box Assessment

The CBA provides a means to estimate maximum short-term impacts from emissions in a given element of space. Several assumptions are incorporated into this technique. First, it assumes that emissions are homogeneously mixed and contained within a defined volume of space throughout which the activities occur. For this assessment, this volume of air is defined by vertical and lateral boundaries. The vertical boundary of altitude established was 3,000 feet

above sea level (ASL) and the dimensional area within TAs B-71 and B-82 was utilized for lateral boundaries.

Second, it assumes that the calculated concentrations of criteria pollutants within the defined box resulting from the operations are representative activities of the maximum resultant ground-level (i.e., sea level) concentrations. Because of these assumptions, the results of these calculations are expected to indicate somewhat higher air quality impacts than those that would result from a more structured dispersion model. However, the results do provide a maximum impact scenario for comparison with established ambient air quality standards.

For this assessment, it was assumed that activities occurring within TAs B-71 and B-82 operated randomly. The ceiling altitude of 3,000 feet was chosen as a conservative estimate of the average height for stable temperature inversion common to the area. This type of inversion can significantly inhibit, if not effectively block, vertical mixing and widespread dispersion of some air pollutants. Therefore, pollutants can be considered confined between the base of the inversion and the ground, or that portion of the lower atmosphere commonly termed the mixing layer. The mixing layer height determines the vertical extent of the dispersion process for pollutant releases below the mixing height.

A conservative 1-hour scenario was developed encompassing the individual emissions associated with mobile sources as well as ordnance and munition activities. The scenario assumes that all activities within the year occurred during the same time frame. These calculated 1-hour emissions contributions were then compared to the appropriate NAAQS. For averaging times greater than 1 hour, the maximum concentration will generally be less than the calculated 1-hour value. The comparison is limited to those criteria pollutants directly associated with range activities.

CUMULATIVE IMPACT COMPARISON

In order to evaluate the range emissions and their impact to the overall ROI, which is defined as Okaloosa County for this document's purposes, the emissions associated with the range activities were compared to the total emissions on a pollutant-by-pollutant basis for the ROI's 2002 NEI data. Potential impacts to air quality are then identified as the total emissions of any pollutant that equals 10 percent or more of the ROI's emissions for that specific pollutant. The 10 percent criteria approach is used in the General Conformity Rule as an indicator for impact analysis for non-attainment and maintenance areas.

In accordance with Section 176(c) of the CAA, the USEPA promulgated the General Conformity Rule that is codified at 40 CFR 51, Subpart W. The provisions of this rule apply to state review of all federal actions submitted pursuant to 40 CFR 51, Subpart W, and incorporated by reference at Rule 62-204.800, FAC. The Conformity Rule only affects federal actions occurring in nonattainment areas (areas that do not meet the NAAQS) and maintenance areas (areas that were classified as nonattainment but now are in attainment). Since the Proposed and Alternative Actions are located in attainment areas, Eglin AFB would not be required to prepare a conformity determination for the activities described. However, the general concept of the conformity rule was used as a criterion although not necessary.

For impacts screening in this analysis, a more restrictive criteria than required in the General Conformity Rule was used. Rather than comparing emissions from test activities to regional inventories (as required in the General Conformity Rule), emissions were compared to the individual counties potentially impacted, which is a smaller area.

National Emissions Inventory

The NEI is operated under the USEPA's Emission Factor and Inventory Group, which prepares the national database of air emissions information with input from numerous state and local air agencies, from tribes, as well as from industry. The database contains information on stationary and mobile sources that emit criteria air pollutants and hazardous air pollutants (HAPs). The database includes estimates of annual emissions, by source, of air pollutants in each area of the country, on an annual basis. The NEI includes emission estimates for all 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands. Emission estimates for individual points or major sources (facilities), as well as county level estimates for area, mobile, and other sources, are available currently for years 1996, 1999, and 2002 for criteria pollutants and HAPs.

Criteria air pollutants are those for which the USEPA has set health-based standards. Four of the six criteria pollutants are included in the NEI database.

- Carbon Monoxide (CO)
- Nitrogen Oxides (NO_x)
- Sulfur Dioxide (SO₂)
- Particulate Matter (PM₁₀ and PM_{2.5})

The NEI also includes emissions of volatile organic compounds (VOCs), which are ozone precursors, emitted from motor vehicle fuel distribution and chemical manufacturing, as well as other solvent uses. VOCs react with nitrogen oxides in the atmosphere to form ozone. The NEI database defines three classes of criteria air pollutant sources.

- Point Sources – Stationary sources of emissions, such as an electric power plant, that can be identified by name and location. A “major” source emits a threshold amount (or more) of at least one criteria pollutant and must be inventoried and reported. Many states also inventory and report stationary sources that emit amounts below the thresholds for each pollutant.
- Area Sources – Small point sources such as a home or office building, or a diffuse stationary source, such as wildfires or agricultural tilling. These sources do not individually produce sufficient emissions to qualify as point sources. Dry cleaners are one example (i.e., a single dry cleaner within an inventory area typically will not qualify as a point source), but collectively the emissions from all of the dry cleaning facilities in the inventory area may be significant and therefore must be included in the inventory.
- Mobile Sources - Any kind of vehicle or equipment with a gasoline or diesel engine; airplane; or ship.

The main sources of criteria pollutant emissions data for the NEI are:

- For Electric Generating Units – USEPA’s Emission Tracking System/Continuous Emissions Monitoring Data and Department of Energy fuel use data.
- For Other Large Stationary Sources – State data and older inventories where state data was not submitted.
- For On-Road Mobile Sources – The Federal Highway Administration’s estimate of vehicle miles traveled and emission factors from the USEPA’s MOBILE Model.
- For Non-Road Mobile Sources – USEPA’s NONROAD Model.
- For Stationary Area Sources – State data, USEPA-developed estimates for some sources, and older inventories where state or USEPA data was not submitted.

State and local environmental agencies supply most of the point source data. The USEPA’s Clean Air Market program supplies emissions data for electric power plants.

REFERENCES:

Florida Department of Environmental Protection (FDEP), 1996. FAC 62-204.240 (1)(a-b). Ambient Air Quality Standards. March.

Government Printing Office, no date, Code of Federal Regulations, Code of Federal Regulations, Title 40, Part 50 (40 CFR 50). www.access.gpo.gov/nara/cfr/cfr-retrieve.html#page1.

USEPA, 2008. National Ambient Air Quality Standards (NAAQS). Retrieved from <http://epa.gov/air/criteria.html>. Last Update 28 March 2008. Accessed 10 September 2008.

APPENDIX D
BIOLOGICAL RESOURCES

ECOLOGICAL ASSOCIATIONS AND OTHER LAND USES

Sandhills Ecological Association

The Sandhills Ecological Association encompasses approximately 456 acres (20 percent) of TA B-71 and approximately 14 acres (less than 1 percent) of TA B-82. Longleaf Pine Sandhills are characterized by an open, savanna-like structure with a moderate to tall canopy of longleaf pine, a sparse midstory of oaks and other hardwoods, and a diverse groundcover composed mainly of grasses, forbs, and low stature shrubs. The structure and composition was maintained by frequent fires, (every 3 to 5 years), which controlled hardwood, sand pine and titi encroachment.

Longleaf pine sandhills consist of a high diversity of species adapted to fire and the heterogeneous conditions that fires create. Variation within the sandhills is recognized by two associations differing in the dominance of grass species (wiregrass versus bluestem). Sandhills are often associated with and grade into scrub, upland pine forest, xeric hammock, or slope forests. Associated trees include longleaf pine turkey oak, longleaf pine-xerophytic oak, longleaf pine-deciduous oak or high pine (U.S. Air Force, 2007). The functional significance of the Sandhill ecological association is to provide maintenance of regional biodiversity. Additionally, the sandhills, due to their wide coverage on Eglin, are the ecological association across which fire carries into the other imbedded fire-dependent systems. Eglin AFB is the largest and least fragmented single longleaf pine ownership in the world, and has the best remaining old growth longleaf pine. Seepage slopes are a common embedded wetland feature found within Eglin's sandhill matrix.

Wetland/Riparian Ecological Association

Wetlands and Riparian ecological associations on Eglin AFB can be divided into the following categories: (1) wetlands, which are dominated by plants adapted to anaerobic substrate conditions imposed by saturation or inundation for more than 10 percent of the growing season; (2) lacustrine wetlands that occur in nonflowing wetlands of natural depressions; and (3) riverine communities, which are natural, flowing waters from their source to the downstream limits of tidal influence and are bounded by channel banks. The above categories are further broken down into the following natural community types.

Floodplain wetlands have alluvial sand or peat substrates associated with riverine natural communities and are subject to flooding but not permanent inundation.

- (1) Bottomland forest – Bottomland forest occurs on low-lying flatlands, usually bordering streams with distinct banks, where water rarely inundates the forest, such as areas along the Yellow River. On Eglin AFB, these communities are also found on low terraces along the larger streams, such as Alaqua Creek.
- (2) Floodplain forest – This term is used to designate river bottoms and low creek bottoms. In swamps with a recent fire history, the common tree is the black titi.

Basin wetlands are shallow, closed basin with an outlet usually only in time of high water. Bottom substrate is typically peat or sand and is usually inundated. Basin wetland vegetation is woody and/or herbaceous.

- (1) Depression marsh – These systems are shallow, usually rounded depressions in sand substrate with herbaceous vegetation often in concentric bands. Peaty soil accumulates in the deepest sections where water is most permanent.
- (2) River floodplain lake – Fresh water ponds support a variety of aquatic vegetation. Not all ponds on the Reservation support the same vegetation.
- (3) Sandhills upland lake – Shallow, rounded depressions, sandy bottom, low nutrient.

Riparian zones may be classified into the following ravine natural community types.

- (1) Alluvial stream – Clay and silt carrying, larger streams, perennial (Yellow River). Alluvial streams are characterized as perennial or intermittent seasonal watercourses originating in high uplands that are primarily composed of sandy clays and clayey-silty sands. Surface runoff generally predominates over subsurface drainage.
- (2) Blackwater stream – Blackwater streams are characterized as perennial or intermittent seasonal water courses originating deep in sandy lowlands where extensive wetlands with organic soils function as reservoirs, collecting rainfall, and discharging it slowly to the stream. The dark, tea-colored water typical of blackwater streams are laden with tannins, particulates, dissolved organic matter, and iron derived from drainage through swamps and marshes.
- (3) Seepage stream – Seepage streams are characterized as perennial or intermittent seasonal water courses, originating from shallow ground waters that have percolated through deep, sandy, upland soils. These streams are typically clear to lightly colored and are relatively short, shallow, and narrow.

Table D-1 shows the type of Wetlands/Riparian ecological associations found on or adjacent to Eglin AFB. The Wetland/Riparian Ecological Association accounts for less than 1 percent of both TAs B-71 and B-82.

**Table D-1. Wetland Types by Wetland/Riparian Ecological Association
on or Adjacent to Eglin AFB**

Type of Wetlands	Source of Hydrology	Substrate	Vegetation	Functional Significance
Depression Wetlands	Groundwater or rainwater	Peat or sand	Woody and/or herbaceous	Maintains regional biodiversity Floodwater storage Filters pollutants Maintains water quality
Seepage Slopes	Downslope seepage (sheetflow)	High in clay	Herbaceous	Rare habitats High biodiversity
Floodplain Wetlands	Rivers, streams, and creeks	Peat or sand	Woody and/or herbaceous	Maintains regional biodiversity Floodwater storage Wildlife corridors Maintains water quality

Source: U.S. Air Force, 2007

Flatwoods Ecological Association

Neither TA B-71 nor TA B-82 contains areas of flatwoods ecological association within the test areas boundaries; however, flatwoods ecological association is located in close proximity to the northern boundary of TA B-71. Pine flatwoods occur on flat, moderately well drained sandy soils with varying levels of organic matter, often underlain by a hard pan. While the canopy consists of slash pine and longleaf pine, the understory varies greatly from shrubby to an open diverse understory of grasses and herbs. The primary environmental factors controlling vegetation type are soil moisture (soil type and depth to groundwater) and fire history. The average fire frequency in flatwoods is one to eight years, with nearly all of the plants and animals inhabiting this community adapted to recurrent fires. Home to numerous rare and endangered plants and animals, the Flatwoods Matrix plays a significant role in maintaining regional biodiversity, Eglin's more than 300 acres of old growth flatwoods are among the last remaining of such high quality.

Other Land Uses

Open Grasslands/Shrublands

Open Grasslands/Shrublands are the largest land use on both TAs B-71 and B-82 and encompass approximately 1,618 acres (70 percent) and 868 acres (60 percent) of the test areas, respectively. The Open Grasslands/Shrublands occur in areas of heavily disturbed Sandhills, Flatwoods, and Wetlands/Riparian ecological sites (U.S. Air Force, 2003) and predominantly occur within the test areas on Eglin AFB. The Open Grassland/Shrubland association is characterized by grasses and low shrubs and is maintained with machinery or fire that removes or prevents future growth. Riparian zones are found throughout these areas.

Urban/Landscaped Areas

Urban/landscaped areas encompass approximately 226 acres (10 percent) of TA B-71 and approximately 554 acres (39 percent) of TA B-82. Eglin AFB currently has approximately 46,000 acres of semi-improved areas and 14,000 acres of improved areas. Bahia grass (*Panicum notatum*) is the primary turf grass that is used in the semi-improved areas while St. Augustine grass

(*Stenotaphrum secundatum*) and Centipede grass (*Eremochloa ophiuroides*) are the primary turf grasses used in the improved areas. Ground maintenance encourages low-maintenance landscaping and uses native plants whenever possible (U.S. Air Force, 2007).

SENSITIVE SPECIES

Eastern Indigo Snake (*Drymarchon corais couperi*)

The federally threatened eastern indigo snake is the largest nonvenomous snake in North America and can grow up to 125 inches in length. The primary reason for its listing is the population decline resulting from habitat loss and fragmentation. Movement along travel corridors between seasonal habitats also exposes the snake to danger from increased contact with humans. The snake frequents flatwoods, hammocks, stream bottoms, canebrakes, riparian thickets, and high ground with deep, well drained to excessively drained, sandy soils. Habitat preferences vary seasonally. Xeric Sandhill winter dens are used from December to April; from May to July they shift from winter dens to summer territories; from August through November they are frequently located in shady creek bottoms.

The indigo snake is strongly associated with gopher tortoise burrows. They use abandoned burrows in winter and spring for egg laying, shedding, and protection from dehydration and temperature extremes. They also use stump holes, armadillo and gopher holes, and other wildlife ground cavities.

Red-Cockaded Woodpecker (*Picoides borealis*)

The RCW (*Picoides borealis*) is listed as a federally endangered bird species and a state species of special concern. The RCW excavates cavities in live longleaf pine trees that are at least 85 years old. The RCW historically had a habitat range as far north as New Jersey and as far west as Oklahoma. Today, the RCW has been restricted to the southeastern United States, from Florida to Virginia and to southeast Texas, due to a loss of habitat. In the southeast, 98 percent of the longleaf pine forests have been removed, making relatively undeveloped federal lands such as Eglin AFB primary habitat for the species. Due to the preservation of continuous longleaf pine forests on Eglin, the Eglin Range has one of the largest remaining populations of RCWs in the country. In 2003, USFWS identified Eglin AFB as 1 of 13 primary core populations for the RCW (U.S. Air Force, 2006).

As of 6 August 2009, a total of 371 potential breeding groups have been documented (Figure D-1). This meets Eglin's recovery goal as established in the official species recovery plan. Eglin reinitiated consultation on 2 December 2009, with the USFWS on the management of the RCW; it was determined that Eglin's current management actions, including implementation of conservation measures, generally continue to have No Effect or are Not Likely to Adversely Affect the RCW. The USFWS concurred with this determination and provided a letter of concurrence dated 24 March 2010.

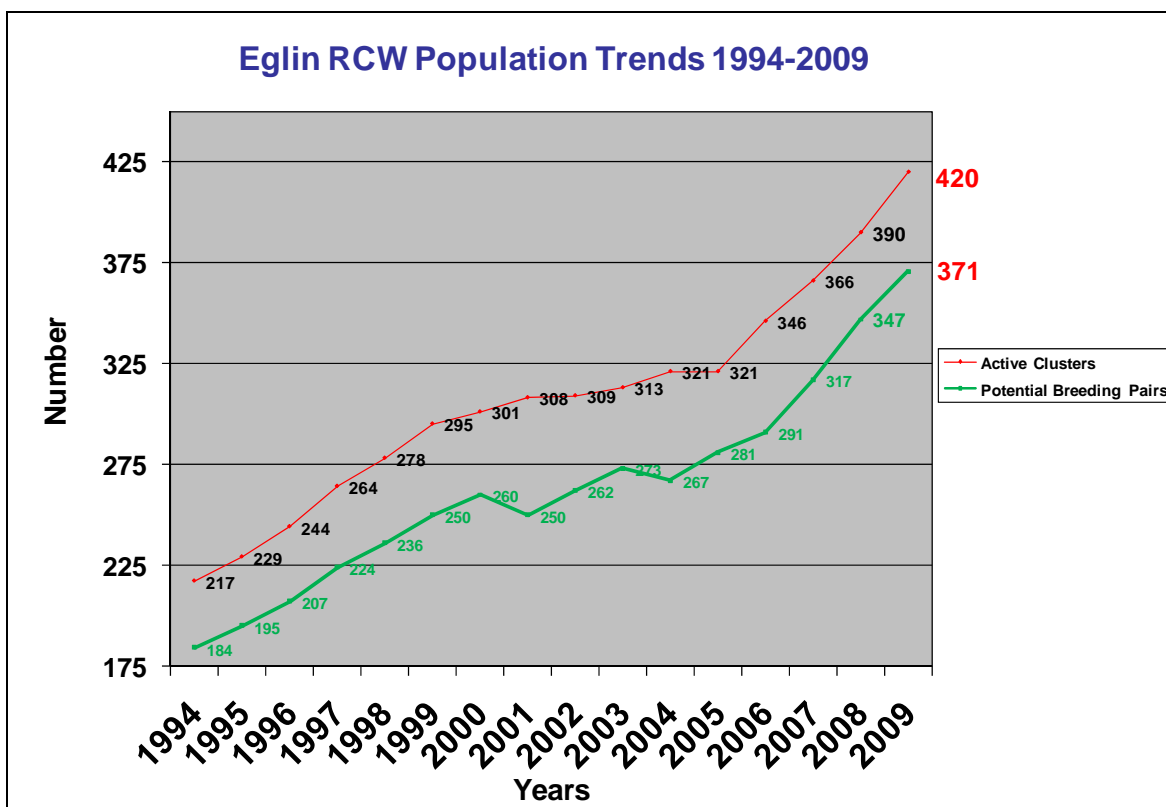


Figure D-1. Eglin RCW Population Trends 1994–2009

Reticulated Flatwoods Salamander (*Ambystoma bishopi*)

The reticulated flatwoods salamander is listed as federally endangered and is a state species of special concern. Based on molecular and morphological analyses, Pauly et al. (2007) proposed the separation of the flatwoods salamander into two species. The division lies along the Apalachicola–Flint Rivers with reticulated flatwoods salamanders (*Ambystoma bishopi*) inhabiting areas to the west and frosted flatwoods salamanders (*A. cingulatum*) ranging to the east of the rivers. There are 18 known breeding ponds for the reticulated flatwoods salamander on the Eglin Range. Additionally, the Eglin Range supports approximately 17,000 acres of potential salamander habitat in mesic flatwoods. On 10 February 2009, USFWS issued a notification in the *Federal Register* that no critical habitat would be designated for the reticulated flatwoods salamander on Eglin AFB (Federal Register, 2009).

Optimal habitat for this small mole salamander is open, mesic (moderately wet) woodlands of longleaf or slash pine flatwoods maintained by frequent fires and that contain shallow, ephemeral wetland ponds. Males and females migrate to these ephemeral ponds during the cool, rainy months of October through December. The females lay their eggs in vegetation at the edges of the ponds. Flatwoods salamanders may disperse long distances from breeding sites to upland sites where they live as adults (U.S. Air Force, 2006).

The primary threat to the flatwoods salamander is loss of mesic habitat through the filling in of wetlands and other alterations to the landscape hydrology. Flatwoods salamander habitat is also threatened by the introduction of invasive, non-native species. Flatwoods salamanders and their

active breeding wetlands both appear to have declined in number since the original Eglin surveys in 1993 and 1994. This is possibly due in part to several years of drought in the late 1990s and early 2000s. Wetlands used for breeding may not have remained wet long enough for larvae to complete metamorphosis if rainfall amounts were not sufficient. This has resulted in little population recruitment over the last decade at Eglin's wetlands (U.S. Air Force, 2006).

The USFWS guidelines in the *Federal Register*, dated 1 April 1999, establish a 450-meter (1,476-foot) buffer area from the wetland edge of confirmed breeding ponds. Within the buffer area, the guidelines restrict ground-disturbing activities in order to minimize the potential for direct impacts to salamanders, the introduction and spread of invasive non-native plant species, and alterations to hydrology and water quality.

Gopher Tortoise (*Gopherus polyphemus*)

The gopher tortoise is a state-threatened species. The tortoise is found primarily within the Sandhills and open grassland ecological associations on the Eglin Range, where it excavates a tunnel-like burrow for shelter from climatic extremes and refuge from predators. The primary features of good tortoise habitat are sandy soils, open canopy with plenty of sunlight, and abundant food plants (forbs and grasses). Prescribed fire is often employed to maintain these conditions. Nesting occurs during May and June and hatching occurs from August through September. Gopher tortoise burrows serve as important habitat for many species, including the federally listed eastern indigo snake (U.S. Air Force, 2006).

Florida Black Bear (*Ursus americanus floridanus*)

The Florida black bear was proposed for federal listing in 1990, however, in 1998 the USFWS removed it from listing consideration. The Florida black bear is currently listed as a state-threatened species except in Baker and Columbia counties and in the Apalachicola National Forest. Black bear populations are currently found in Florida, Georgia, and a small population in Alabama. Eglin AFB is considered to be the smallest population, with an estimated 60 to 100 individuals; however, Eglin's black bear population has shown signs of increase since the early 1990s (U.S. Air Force, 2002). Eglin's Natural Resources Section frequently receives reports of bear sightings and has responded to a growing number of bear/vehicle collisions and nuisance bear complaints. Most black bears on Eglin utilize the large swamps and floodplain forests in the southwest and northern portions of the Reservation. Black bear sightings have occurred in numerous locations throughout the Eglin Reservation, the majority of which have been within the interstitial areas.

Black bears eat a wide variety of food items. Their seasonal and annual diet consists primarily of fruits, acorns, beetles, and yellow jackets. Black bear in Florida breed in June–July. Implantation is delayed about four months and gestation lasts 7 to 7.5 months (average 220 days) (U.S. Air Force, 2002). Females give birth every two years, at most. Young are born in January–February, and stay with their mother until fall of the second year. Litter size is typically two to four cubs and females generally give birth at 3 to 4 years old (U.S. Air Force, 2002).

Southeastern American Kestrel (*Falco sparverius paulus*)

The Southeastern American kestrel is state-listed as threatened. The kestrel is a small falcon with pointed wings, a reddish back and tail, and two black stripes on each side of the white sides of its head. Kestrels are relatively common on Eglin AFB. The clutch size is three to seven (usually four to five). Incubation is conducted mainly by females, and usually lasts 29 to 31 days. Young are cared for by both parents and usually leave the nest in about 29 to 31 days. Kestrels will readily renest if the first clutch is lost.

Kestrels prefer open or partly open sandhills habitat. On Eglin, kestrels frequently utilize the cleared test areas as foraging areas and nest in cavities most often in longleaf pine trees. Cavity trees may be dead or alive. Kestrels frequently nest in old growth longleaf pines that contain cavities originally excavated by RCW. These cavities are usually enlarged by fox squirrels, pileated woodpeckers, or fire, making them large enough for kestrel use. Kestrels will readily use nest boxes; however, Eglin appears to contain an abundance of suitable nesting habitat. Kestrels feed on insects (e.g., grasshoppers and crickets) and small vertebrates (e.g., snakes, lizards, birds, mice, and sometimes bats). They often utilize the tree line or utility poles adjacent to and within cleared test areas.

Florida Pine Snake (*Pituophis melanoleucus mugitus*)

The Florida pine snake has physically adapted to digging in the loose sand and also enters rodent burrows and occasionally gopher tortoise burrows. It is currently listed as a species of special concern by the state of Florida. Adults of this species are generally between 4 and 7 feet long, with an indistinct pattern of light brown blotches with a rusty background (USFWS et al., 2003). The Florida pine snake prefers sandhills, sand pine scrub, and pastures with dry, sandy soils and open canopies. They are found throughout most of the state, however, they are absent from the Keys. Pine snake habitat is best managed by maintaining gopher tortoise populations and by keeping soil and ground disturbance to a minimum.

Florida Bog Frog (*Rana okaloosae*)

The Florida bog frog, a species of special concern by the state, can only be found within Walton, Okaloosa, and Santa Rosa counties. Most of the habitat for the frog lies on Eglin AFB property with all known locations of the frog in small tributary streams of the Yellow, Shoal, and East Bay Rivers. There are 65 documented bog frog locations on the Eglin Range, but only 58 of those have been verified.

MIGRATORY BIRDS

The Migratory Bird Treaty Act (16 USC 703-712; 1997-Supp) and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, protect migratory birds and their habitats and establish a permitting process for legal taking. A migratory bird is defined by the USFWS as any species or family of birds that lives, reproduces, or migrates within or across international borders at some point during their annual life cycle. For normal and routine operations such as installation support functions, actions of the DoD may not result in pursuit, hunting, taking,

capturing, killing, possession, or transportation of any migratory bird, bird part, nest, or egg thereof, except as permitted. The DoD must address these routine operations through the Memorandum of Understanding developed in accordance with EO 13186 (DoD and USFWS, 2006). Under the 2003 National Defense Authorization Act, the Armed Forces are exempted from the incidental taking of migratory birds during military readiness activities, except in cases where an activity would likely cause a significant adverse effect to the population of a migratory bird species. As detailed in the final rule in the *Federal Register* (50 CFR 21), in this situation the Armed Forces, in cooperation with the USFWS, must develop and implement conservation measures to mitigate or minimize the significant adverse impacts (*Federal Register*, 2007).

Two migratory birds could be expected to appear on or near TAs B-71 and B-82, the federally endangered RCW and the state-threatened Southeastern American kestrel.

References:

- Department of Defense and the U.S. Fish and Wildlife Service, 2006. Memorandum of Understanding Between the U.S. Department of Defense and the U.S. Fish and Wildlife Service to Promote the Conservation of Migratory Birds. *Federal Register*, Vol 71, No 168. 30 August 2006.
- Federal Register*, 2009. *Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Reticulated Flatwoods Salamander; Designation of Critical Habitat for Frosted Flatwoods Salamander and Reticulated Flatwoods Salamander*. Vol 74, No 26. 10 February 2009.
- Pauly, G. B., O. Piskurek, and H. B. Shaffer, 2007. P hylogeographic concordance in the southeastern United States: the flatwoods salamander, *Ambystoma cingulatum*, as a test case. *Molecular Ecology*, Vol 16, pp 415-429.
- U.S. Air Force, 2002. Integrated Natural Resources Management Plan, Eglin Natural Resources Section AAC/EMSN, Eglin AFB, Florida.
- U.S. Air Force, 2003. Environmental Baseline Study-Resource Appendices (EBSRA) Volume I, Eglin Land Test and Training Range, Department of the Air Force Air Armament Center, Eglin Air Force Base, Florida, December.
- U.S. Air Force, 2006. Threatened and Endangered Species Component Plan, Eglin AFB, Florida. 96 CEG/CEVSN.
- U.S. Air Force, 2007. Integrated Natural Resources Management Plan (INRMP), Department of the Air Force Air Armament Center, Eglin Air Force Base, Florida, July 2007.
- U.S. Fish and Wildlife Service (USFWS), National Fish and Wildlife Foundation, the Division of Forestry of the Florida Department of Agriculture and Consumer Services, Florida Natural Areas Inventory, and the Florida Department of Transportation, 2003. Rare, Threatened, and Endangered Species in Forests of Florida. Brandt and Chafin.

APPENDIX E

COASTAL ZONE MANAGEMENT ACT (CZMA)
DETERMINATION

FEDERAL AGENCY COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY DETERMINATION

Introduction

This document provides the State of Florida with the U.S. Air Force's Consistency Determination under CZMA Section 307 and 15 C.F.R. Part 930 sub-part C. The information in this Consistency Determination is provided pursuant to 15 C.F.R. Section 930.39 and Section 307 of the Coastal Zone Management Act, 16 U.S.C. § 1456, as amended, and its implementing regulations at 15 C.F.R. Part 930.

This federal consistency determination addresses the Proposed Action associated with test and training activities on Test Areas (TA) B-71 and B-82, Eglin Air Force Base (AFB), Florida (Figure 1).

Proposed Federal agency action:

The Proposed Action would authorize the current level of activity at TA B-71 and TA B-82 as well as foreseeable future activities, plus a 300 percent increase in mission activity, and would include avoidance and minimization measures as part of the proposed action. A 300 percent increase was chosen as a likely maximum surge increase in military testing and training during a national defense contingency.

The region of influence (ROI) for this analysis is TA B-71 and B-82 and a one-mile buffer around each test area. TA B-71 and B-82 are located in the western portion of the Eglin Range Complex in Okaloosa and Santa Rosa Counties, approximately 8 miles northwest of Eglin Main Base. Test Area B-71 is a major test area most commonly used for static ground tests and surf zone countermeasures testing. Previously, TA B-71 was primarily used to test submunitions, incendiary and flame weapons. Test Area B-82 is a lesser test area located about one-half mile northwest of B-71 and is most commonly used for testing submunitions, mine fields, and munitions under static conditions, as well as a drop zone for paratroops and equipment (Figure 2).

The mission activities that are included are those events that originate and/or terminate on TA B-71 or B-82. The test areas support a variety of testing and training activities that include:

Air to Surface (A/S) Testing

A/S testing missions may involve the use of a new weapon, new fuse, upgraded guidance or sensor system, or a new mix of weapons not currently authorized for carriage. Some A/S tests may evaluate new bombing computer software without expending an actual weapon, and some involve releasing or firing a bomb or missile from an aircraft to impact somewhere on the test area. Both TA B-71 and TA B-82 can accommodate A/S testing, though TA B-71 is not currently used for this type of activity since damage to the asphalt grid and motion table could result.

Static Ground Testing

Static ground testing encompasses a large variety of testing. These tests include bullet impact testing, fragment impact testing, slow/fast cook-off testing, warhead damage assessment, arena testing, and gun/ammunition/gun mount testing. These tests usually require remote detonation and extensive instrumentation with camera and video coverage. Both test areas can accommodate these activities.

Surface to Surface (S/S) Testing

S/S testing is performed on TA B-71; TA B-82 is not used for this type of test. There are two types of S/S testing: gun testing and shallow water mine countermeasures testing. During a gun test, the performance of a gun or ammunition over an extended distance is evaluated. Shallow water mine countermeasures testing involves a beach mine-clearing system deployed by rockets. The six degrees of motion platform on TA B-71 helps to simulate the rolling action of a vessel on the sea to enhance this testing.

Ground Operations

Training missions or activities are designed to teach, maintain, or increase the operator's proficiency to perform these activities. Training is divided into categories, similar to the testing categories, to describe the mission activities. Under these categories, the activity is described; the major trainees, typical aircraft, and numbers of missions are listed; and the types and numbers of expendables associated with the missions are identified. Security forces conducted small arms training on TA B-71 during the updated baseline years, expending several thousand rounds of 5.56-millimeter (mm), 7.62-mm, and 9-mm caliber rounds.

Additional information regarding all current testing and training activities and user groups are described in the *Test Areas B-71 and B-82 Final Environmental Baseline Document (EBD)*, Chapter 2, Mission Summary and the *Test Areas B-71 and B-82 REA*, Chapter 2, Alternatives.

Federal Review

Statutes addressed as part of the Florida Coastal Zone Management Program consistency review and considered in the analysis of the Proposed Action are discussed in the following table.

Pursuant to 15 C.F.R. § 930.41, the Florida State Clearinghouse has 60 days from receipt of this document in which to concur with, or object to, this Consistency Determination, or to request an extension, in writing, under 15 C.F.R. § 930.41(b). Florida's concurrence will be presumed if Eglin AFB does not receive its response on the 60th day from receipt of this determination.

Florida Coastal Management Program Consistency Review

Statute	Consistency	Scope
Chapter 161 <i>Beach and Shore Preservation</i>	The Proposed Action would not affect beach and shore management, specifically as it pertains to: <ul style="list-style-type: none"> • The Coastal Construction Permit Program. • The Coastal Construction Control Line (CCCL) Permit Program. • The Coastal Zone Protection Program. All activities would occur on federal property.	Authorizes the Bureau of Beaches and Coastal Systems within DEP to regulate construction on or seaward of the states' beaches.
Chapter 163, Part II <i>Growth Policy; County and Municipal Planning; Land Development Regulation</i>	The Proposed Action would not affect local government comprehensive plans.	Requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest.
Chapter 186 <i>State and Regional Planning</i>	The Proposed Action would not affect state plans for water use, land development, or transportation.	Details state-level planning requirements. Requires the development of special statewide plans governing water use, land development, and transportation.
Chapter 252 <i>Emergency Management</i>	The Proposed Action would not affect the state's vulnerability to natural disasters. The Proposed Action would not affect emergency response and evacuation procedures.	Provides for planning and implementation of the state's response to, efforts to recover from, and the mitigation of natural and manmade disasters.
Chapter 253 <i>State Lands</i>	All activities would occur on federal property; therefore the Proposed Action would not affect state public lands.	Addresses the state's administration of public lands and property of this state and provides direction regarding the acquisition, disposal, and management of all state lands.
Chapter 258 <i>State Parks and Preserves</i>	The Proposed Action would not affect state parks, recreational areas and aquatic preserves.	Addresses administration and management of state parks and preserves.
Chapter 259 <i>Land Acquisition for Conservation or Recreation</i>	The Proposed Action would not affect tourism and/or outdoor recreation.	Authorizes acquisition of environmentally endangered lands and outdoor recreation lands.
Chapter 260 <i>Recreational Trails System</i>	The Proposed Action would not include the acquisition of land and would not affect the Greenways and Trails Program.	Authorizes acquisition of land to create a recreational trails system and to facilitate management of the system.
Chapter 375 <i>Multipurpose Outdoor</i>	The Proposed Action would not affect	Develops comprehensive multipurpose outdoor recreation plan to document

<i>Recreation; Land Acquisition, Management, and Conservation</i>	opportunities for recreation on state lands.	recreational supply and demand, describe current recreational opportunities, estimate need for additional recreational opportunities, and propose means to meet the identified needs.
Chapter 267 <i>Historical Resources</i>	<p>Continued maintenance and upkeep of existing structures is required. If modification or demolition of facilities were to occur, the existing Cold War Era structures will require additional consideration. All actions must adhere to standards and guidelines outlines in the Eglin AFB Integrated Cultural Resources Management Plan and the previously developed Programmatic Agreement between the AAC, the Florida State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation.</p> <p>Continued coordination should occur with 96 CEG/CEVSH prior to future proposed activities. In the event that unknown cultural resources are discovered during a mission activity, all activity in the immediate vicinity must cease until the Base Historic Preservation Officer and 96 CEG/CEVSH have been notified and a determination of significance has been rendered.</p> <p>No adverse effects to cultural resources are expected from implementation of the Proposed Action.</p> <p>Therefore, the Proposed Action would be consistent with the State's policies concerning historical resource management.</p>	Addresses management and preservation of the state's archaeological and historical resources.
Chapter 288 <i>Commercial Development and Capital Improvements</i>	The Proposed Action would not affect future business opportunities on state lands, or the promotion of tourism in the region.	Provides the framework for promoting and developing the general business, trade, and tourism components of the state economy.
Chapter 334 <i>Transportation Administration</i>	The Proposed Action would not affect transportation.	Addresses the state's policy concerning transportation administration.
Chapter 339 <i>Transportation Finance and Planning</i>	The Proposed Action would not affect the finance and planning needs of the state's transportation system.	Addresses the finance and planning needs of the state's transportation system.
Chapter 370 <i>Saltwater Fisheries</i>	The Proposed Action would not affect saltwater fisheries.	Addresses management and protection of the state's saltwater fisheries.

Chapter 372 <i>Wildlife</i>	<p>Mission operations have the potential to affect sensitive habitats and species through direct encounters, noise, chemical impacts, and habitat alteration. The management actions in Section 2.5 and 4.4 of the TA B-71 and B-82 REA would serve to eliminate or minimize many of the potential impacts from proposed activities.</p> <p>Overall impacts to biological resources would not be significant for the Proposed Action. Therefore, Eglin Natural Resources has determined that the Proposed Action would have "No Effect" on the red-cockaded woodpecker, reticulated flatwoods salamander or eastern indigo snake based on the implementation of the management requirements discussed in Section 4.4 of the TA B-71 and B-82 REA.</p> <p>The Proposed Action would be consistent with the State's policies concerning the protection of wildlife and other natural resources.</p>	Addresses the management of the wildlife resources of the state.
Chapter 373 <i>Water Resources</i>	<p>Increased munitions expenditures would not result in metal concentrations in groundwater exceeding USEPA risk-based concentrations. Surface water resources are located at distances from targets sufficient to minimize potential for contaminant transport, and sedimentation due to erosion would be controlled by management requirements. Wetlands would not be impacted, and the Proposed Action would not modify the floodplain.</p> <p>Eglin Water Resources (96 CEG/CEVCE) would ensure that any applicable permitting requirements would be satisfied in accordance with Florida Administrative Code.</p> <p>Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding the water resources of the state.</p>	Addresses the state's policy concerning water resources.
Chapter 376 <i>Pollutant Discharge Prevention and Removal</i>	<p>Munitions fragments and residues would be generated as a result of testing and training missions. Ordnance expenditures would increase three-fold; therefore the release of hazardous chemicals would increase. Despite this, no Toxic Release Inventory thresholds would be exceeded and adverse impacts to the environment are not</p>	Regulates transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges.

	<p>anticipated.</p> <p>Management practices would remain in place that assure testing and training areas will be scanned for debris and dud munitions, and that they would be removed. Any dud munitions or unexploded ordnance would be flagged and removed according to standard procedures.</p> <p>Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding the transfer, storage, or transportation of pollutants.</p>	
Chapter 377 <i>Energy Resources</i>	The Proposed Action would not affect energy resource production, including oil and gas, and/or the transportation of oil and gas.	Addresses regulation, planning, and development of oil and gas resources of the state.
Chapter 380 <i>Land and Water Management</i>	The Proposed Action would not affect development of state lands with regional (i.e. more than one county) impacts. The Proposed Action would not include changes to coastal infrastructure such as capacity increases of existing coastal infrastructure, or use of state funds for infrastructure planning, designing or construction.	Establishes land and water management policies to guide and coordinate local decisions relating to growth and development.
Chapter 381 <i>Public Health, General Provisions</i>	The Proposed Action would not affect the state's policy concerning the public health system.	Establishes public policy concerning the state's public health system.
Chapter 388 <i>Mosquito Control</i>	The Proposed Action would not affect mosquito control efforts.	Addresses mosquito control effort in the state.
Chapter 403 <i>Environmental Control</i>	<p>The increase in munitions expenditures would cause an increase in air emissions to the region that would be minimal and temporary. The pollutant that has the potential to emit the most is particulate matter. Emissions would remain under the 10 percent threshold and would not exceed National Ambient Air Quality Standards (NAAQS). Air emissions would have no adverse impacts on air quality from the Proposed Action.</p> <p>Therefore, the Proposed Action would be consistent with Florida's statutes and regulations regarding water quality, air quality, pollution control, solid waste management, or other environmental control efforts.</p>	Establishes public policy concerning environmental control in the state.

Chapter 582 <i>Soil and Water Conservation</i>	<p>The Proposed Action would not have any significant impacts to soils. Increased munitions expenditures would not result in metal concentrations in the soil exceeding USEPA risk-based concentrations. Increased munitions training and foot/vehicle traffic could cause soil erosion, particularly on sparsely vegetated slopes. However, adherence to management practices would decrease erosion potential.</p> <p>Therefore, the Proposed Action would be consistent with the Florida's statutes and regulations regarding soil and water conservation efforts.</p>	Provides for the control and prevention of soil erosion.
---	---	--



Figure 1. Overview of Eglin AFB

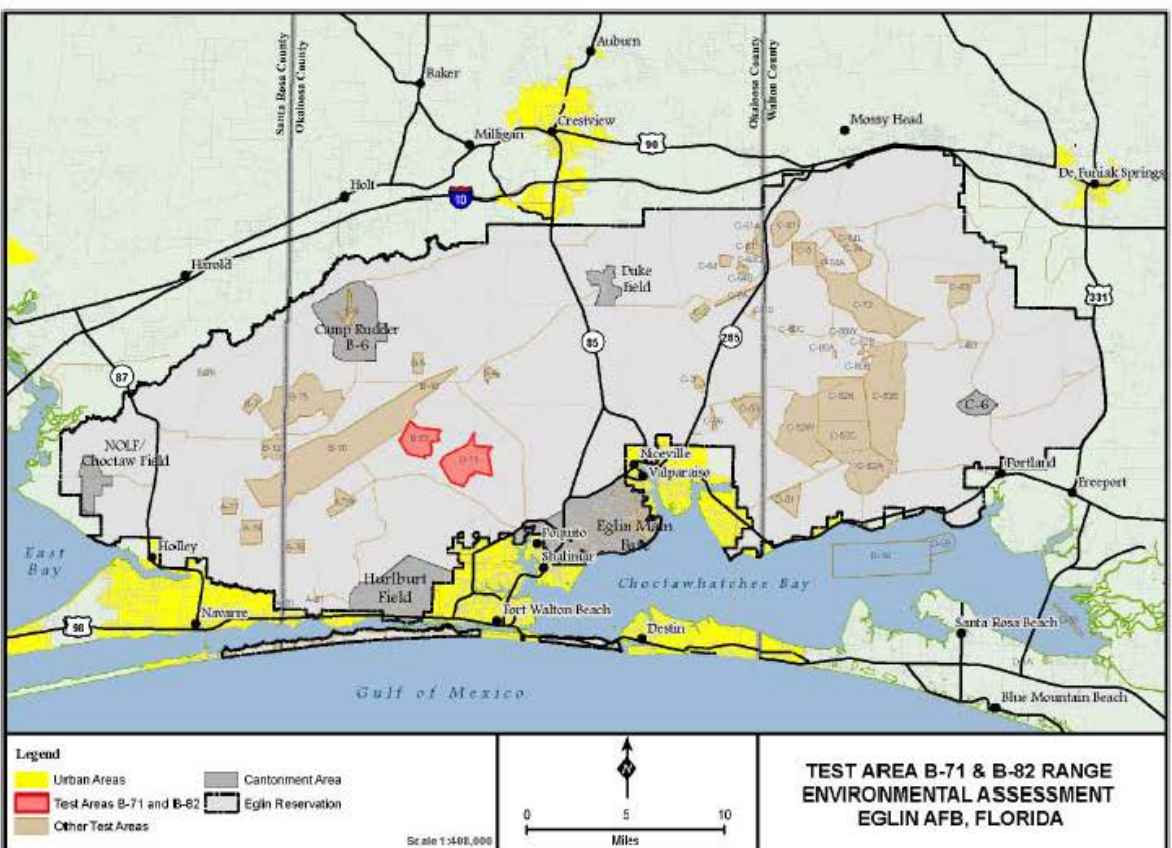


Figure 2. Overview of Test Area B-75

This page is intentionally blank.

APPENDIX F

PUBLIC INVOLVEMENT

NOTICE OF AVAILABILITY, AGENCY COMMENTS, AND AIR FORCE RESPONSES TO COMMENTS

NOTICE OF AVAILABILITY

The following Notice of Availability was published in the Northwest Florida Daily News on 13 September 2010. No public comments were received.

Public Notification

In compliance with the National Environmental Policy Act, Eglin Air Force Base (AFB) announces the availability of the *Test Areas B-71 and B-82 Draft Range Environmental Assessment (REA), Revision 1, at Eglin Air Force Base, FL*, and Draft Finding of No Significant Impact (FONSI) for public review.

The Proposed Action is to establish a new authorized level of activity for Test Areas (TAs) B-71 and B-82 on Eglin AFB that is based on an anticipated usage, with known or minimal environmental impacts. The Preferred Alternative, Alternative 2, would authorize the current level of activity plus an increase in TA B-71 and TA B-82 operations over the current level of activity. The No Action Alternative and Alternative 1 are not expected to be sufficient to account for the expected growth of testing and training activities at Eglin AFB over the next 10 years. Therefore, Alternative 2 was selected as the Preferred Alternative to adequately cover the environmental analysis needed to support potential increased testing and training requirements as they occur.

Your comments on this Draft REA are requested. Letters and other written or oral comments may be published in the Final REA. As required by law, comments will be addressed in the Final REA and made available to the public. Any personal information provided, including private addresses, will be used to identify your desire to make a statement during the public comment period and/or to compile a mailing list to fulfill requests for copies of the Final REA or associated documents. However, only the names and respective comments of respondent individuals will be disclosed; personal home addresses and phone numbers will not be published in the Final EA.

The Draft Range Environmental Assessment is available on the web at www.eglin.af.mil/environmentalassessments.asp, from September 13th until September 27th, 2010.

Comments must be received by September 30th, 2010. Each of the libraries in Crestview, Fort Walton Beach, Navarre, Milton and Niceville have computers available to the general public and librarians who can provide assistance linking to the document. Hard copies of the document may be available for a limited time by contacting: Mike Spaits, 96th Air Base Wing Environmental Public Affairs, 501 De Leon Street, Suite 101, Eglin AFB, Florida 32542-5133 or email: spaitsm@eglin.af.mil. Tel: (850) 882-2836; Fax: (850) 882-3761.

For more information or to comment on these proposed actions, contact: Mike Spaits, Environmental Public Affairs, at one of the contacts above

2072109

AGENCY COMMENTS

Florida Department of
Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Mimi A. Drew
Secretary

September 29, 2010

Ms. Amy L. Sands, Project Manager
Science Applications International Corp.
1140 North Eglin Parkway
Shalimar, FL 32579

RE: Department of the Air Force – Draft Range Environmental Assessment, Revision 1
for Test Areas B-71 and B-82 on Eglin Air Force Base – Okaloosa County, Florida.
SAI # FL201008195416C

Dear Ms. Sands:

The Florida State Clearinghouse has coordinated a review of the subject Draft Range Environmental Assessment (EA) under the following authorities: Presidential Executive Order 12372; Section 403.061(40), *Florida Statutes*; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

The Florida Department of Environmental Protection's (DEP) Northwest District Office in Pensacola notes that, based upon the scope of this proposal, the applicant will likely be required to apply for and obtain an Environmental Resource Permit under Chapter 62-346, *Florida Administrative Code* (F.A.C.), for the proposed activities. If an application is received after November 1, 2010, the Rule 62-346, F.A.C., authorization will cover the requirements for both wetlands effects and stormwater management. Depending on the scope and size of the actual impacts, the applicant will need to apply to either the DEP or the Northwest Florida Water Management District (NFWFMD). The applicant is advised to contact the DEP or the NFWFMD prior to submitting an application to discuss the specific scope of the proposed project.

The West Florida Regional Planning Council (WFRPC) recommends that the proposed activities avoid impacts to surface waters, streams, creeks, steepheads, tributaries and potential groundwater recharge areas. Direct, secondary and cumulative impacts to areas known as habitat for federal and state-listed species should also be avoided and wildlife surveys (i.e., gopher tortoise habitat, indigo snakes, red-cockaded woodpeckers, reticulated flatwoods salamanders, Florida black bears, bog frogs, etc.) conducted prior to

"More Protection, Less Process"
www.dep.state.fl.us

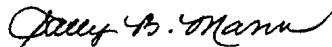
Ms. Amy L. Sands
September 29, 2010
Page 2 of 2

the initiation of activities. Please refer to the enclosed WFRPC memorandum for additional information.

Based on the information contained in the Draft Range EA and the enclosed state agency comments, the state has determined that, at this stage, the proposed activities are consistent with the Florida Coastal Management Program (FCMP). To ensure the projects' continued consistency with the FCMP, the concerns identified by our reviewing agencies must be addressed prior to project implementation. The state's continued concurrence will be based on the activities' compliance with FCMP authorities, including federal and state monitoring of the activities to ensure their continued conformance, and the adequate resolution of issues identified during this and subsequent reviews. The state's final concurrence of the projects' consistency with the FCMP will be determined during the environmental permitting process, if applicable.

Thank you for the opportunity to review the Draft Range EA. Should you have any questions regarding this letter, please contact Ms. Jillian Schatzman at (850) 245-2187.

Yours sincerely,



Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/js
Enclosures

cc: Darryl Boudreau, DEP, Northwest District
John Gallagher, WFRPC



Florida

Department of Environmental Protection

"More Protection, Less Process"



[DEP Home](#) | [QIP Home](#) | [Contact DEP](#) | [Search](#) | [DEP Site Map](#)

Project Information

Project:	FL201008195416C
Comments Due:	09/23/2010
Letter Due:	10/04/2010
Description:	DEPARTMENT OF THE AIR FORCE - DRAFT RANGE ENVIRONMENTAL ASSESSMENT, REVISION 1 FOR TEST AREAS B-71 AND B-82 ON EGLIN AIR FORCE BASE - OKALOOSA COUNTY, FLORIDA.
Keywords:	USAF - DREA, TEST AREAS B-71 AND B-82 ON EGLIN AFB - OKALOOSA CO.
CFDA #:	12.200

Agency Comments:

WEST FLORIDA RPC - WEST FLORIDA REGIONAL PLANNING COUNCIL

The WFRPC recommends that the proposed activities avoid impacts to surface waters, streams, creeks, steepheads, tributaries and potential groundwater recharge areas. Direct, secondary and cumulative impacts to areas known as habitat for federal and state-listed species should also be avoided and wildlife surveys (i.e., gopher tortoise habitat, indigo snakes, red-cockaded woodpeckers, reticulated flatwoods salamanders, Florida black bears, bog frogs, etc.) conducted prior to the initiation of activities. Please see the enclosed WFRPC memorandum for additional information.

FISH and WILDLIFE COMMISSION - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

NO COMMENT BY TED HOEHN ON 9/7/10.

STATE - FLORIDA DEPARTMENT OF STATE

No Comment/Consistent

ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

The DEP Northwest District Office in Pensacola notes that, based upon the scope of this proposal, the applicant will likely be required to apply for and obtain an Environmental Resource Permit under Chapter 62-346, F.A.C., for the proposed activities. If an application is received after November 1, 2010, the Rule 62-346, F.A.C., authorization will cover the requirements for both wetlands effects and stormwater management. Depending on the scope and size of the actual impacts, the applicant will need to apply to either the DEP or NWFWM. The applicant is advised to contact the DEP or NWFWM prior to submitting an application to discuss the specific scope of the proposed project.

NORTHWEST FLORIDA WMD - NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT

No Comment/Consistent

For more information or to submit comments, please contact the Clearinghouse Office at:

3900 COMMONWEALTH BOULEVARD, M.S. 47
TALLAHASSEE, FLORIDA 32399-3000
TELEPHONE: (850) 245-2161
FAX: (850) 245-2190

Visit the [Clearinghouse Home Page](#) to query other projects.

[Copyright](#)
[Disclaimer](#)
[Privacy Statement](#)



Bill Dozier, Chairman
Cindy Frakes, Vice-Chairman

Terry A. Joseph, Executive Director

E-MAIL TRANSMITTAL (S)

TO: Ms. Lauren Milligan, Environmental Manager
STATE CLEARINGHOUSE ▪
Phone: 850-245-2161 Lauren.Milligan@dep.state.fl.us

DATE: 9/10/10

FROM: John Gallagher, Director, Housing & Homeland Security & Emergency Mgmt.
John.Gallagher@wfrpc.org

SUBJECT: State Clearinghouse Review(s) Transmittals:

SAI #	Project Description	RPC #
FL201008195416C	Eglin AFB Draft Range Environmental Assessment, Revision 1 for Test Areas B71 and B-82, Okaloosa County, Florida	OK 123 9-1-2010

	No Comments – Generally consistent with the WFSRPP
X	See Attached

If you have any questions, please call.

P.O. Box 11399 • Pensacola, FL 32524-1399 • P: 850.332-7976 • 1.800.226.8914 • F: 850.637-1923
4081 East Olive Road, Suite A; Pensacola, FL 32514
651 West 14th Street, Suite E • Panama City, FL 32401 • P: 850.769.4854 • F: 850.784.0456
www.wfrpc.org



Cindy Frakes, Chairman
JD Smith, Vice-Chairman

Terry A. Joseph, Executive Director

MEMORANDUM

To: Lauren Milligan, Environmental Manager- Florida State Clearinghouse Florida
Department of Environmental Protection 5900 Commonwealth Boulevard
M.S. 47, Tallahassee, FL 32399

Through: John Gallagher, Comprehensive Planning Director

From: Mary F. Gutierrez, Environmental Planner

Date: Wednesday, September 08, 2010

Subject: Eglin AFB, Florida, Test Areas B-71 and B-82 Draft Range Environmental Assessment, Revision 1, FL201008195416C, RPC#OK-123-9-1-10

Project: The Proposed Action is for the 46th Test Wing commander to establish a new authorized level of activity for TAs B-71 and B-82 that is based on an anticipated maximum usage. This proposal would authorize the current level of activity plus foreseeable future activities with a plus a 300-percent increase in mission activity, including management actions identified in the Range Environmental Assessment. A 300-percent increase was chosen as a likely maximum surge increase in military testing and training during a national defense contingency.

The purpose and need of the Proposed Action is to quickly and efficiently process new programs requesting access to TAs B-71 and B-82 during both routine and crisis situations to provide military users a quick response to priority needs during war or other significant military involvement, as well as to maintain the current approval process for routine uses.

TAs B-71 and B-82 are located on the western half of the Eglin Range Complex in Santa Rosa County, approximately 8 miles northeast of Eglin Main. Test Area B-71 is a major test area most commonly used for static ground tests and surf zone countermeasures testing. Previously, TA B-71 was primarily used to test submunitions, incendiary and flame weapons. TA B-82 is a lesser test area located about one-half mile northwest of B-71 and is most commonly used for testing submunitions, mine fields, and munitions under static conditions, as well as a drop zone for paratroops and equipment.

Based on the information provided, the Council would like to make the following recommendations. Please note that the recommendations below are based on the Strategic Regional Policy Plan, established under Chapter 93-206, Laws of Florida. Responses to these recommendations are not required.

Priority 1 - Protection of the Region's Surface Water Resources:

Policy 1.1: Prevent the introduction of hazardous toxins and chemicals into the Region's surface water system by business, industrial, and private interests.

Policy 1.4: Protect all surface waters from pollution and degradation, with particular emphasis on SWIM priority water bodies, Class I and II waters, Outstanding Florida Waters and State Aquatic Preserves.

P.O. Box 11399 • Pensacola, FL 32524-1399 • P: 850.595.8910 • 1.800.226.8914 • F: 850.595.8967
651 West 14th Street, Suite E • Panama City, FL 32401 • P: 850.769.4854 • F: 850.784.0456
www.wfipc.org

Policy 1.5: Protect wetlands from pollution and unnatural degradation due to development.

Recommendation 1: Avoid impacts to surface waters, streams, creeks, steepheads, and tributaries.

Priority 2 – Protection of the Region's Ground Water Resources:

Policy 1.6: Protect groundwater supply identified in groundwater basin resource inventories prepared by the Northwest Florida Water Management District.

Policy 1.16: Prohibit any activities that would introduce wastes or other by-products into the groundwater system via recharge areas.

Recommendation 1: Avoid impacts to surface waters, streams, creeks, steepheads, tributaries and other potential recharge areas.

Priority 4: Protection of Natural Systems

Goal 1: Continue to protect the Region's functioning natural systems.

Recommendation 1: Avoid impacts, direct or otherwise to all coastal systems, wetlands, and surface waters.

Priority 5 - Protection of Endangered, Threatened, and Rare Species:

Goal 1: Protect native species in the Region that are on the Florida Game and Fresh Water Fish Commission, Florida Wildlife Service, Florida Wildlife Commission list of endangered, threatened, and rare species of Florida.

Recommendation 1: Avoid direct, secondary and cumulative impacts to areas known as habitat for endangered, threatened and rare species.

Recommendation 2: Conduct all wildlife surveys (i.e. gopher tortoise habitat, indigo snakes, RCW, reticulated flatwoods salamander, Florida Black Bear, bog frog, etc.) prior to any activities.

Recommendation 3: Avoid removal of trees.

Recommendation 4: Avoid training and heavy missions near gopher tortoise burrows.

Priority 6 - Land Management and Use

Policy 1.2: Conserve and protect the natural functions of soils, wildlife habitat, floral habitat and wetlands.

Policy 1.4: Protect state or federally owned ecologically sensitive lands from land uses that would impair or destroy the important habitats and plant and animal species occurring on those lands.

Recommendation 1: Avoid direct, secondary and cumulative impacts to areas known as habitat for endangered, threatened and rare species.

P.O. Box 11399 • Pensacola, FL 32524-1399 • P: 850.595.8910 • 1.800.226.8914 • F: 850.595.8967
651 West 14th Street, Suite E • Panama City, FL 32401 • P: 850.769.4854 • F: 850.784.0456
www.wfrpc.org

COUNTY: OKALOOSA
SCH - USAF - EC
106 - NEPA

2010-4034

DATE: 8/18/2010
COMMENTS DUE DATE: 9/23/2010
CLEARANCE DUE DATE: 10/4/2010
SAI#: FL201008195416C

MESSAGE:

STATE AGENCIES	WATER MNGMNT. DISTRICTS	OPB POLICY UNIT	RPCS & LOC GOVS
ENVIRONMENTAL PROTECTION	NORTHWEST FLORIDA WMD		
FISH and WILDLIFE COMMISSION			
X STATE			

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

- Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.
- X Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.
- Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.
- Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

DEPARTMENT OF THE AIR FORCE - DRAFT RANGE ENVIRONMENTAL ASSESSMENT, REVISION 1 FOR TEST AREAS B-71 AND B-82 ON EGLIN AIR FORCE BASE - OKALOOSA COUNTY, FLORIDA.

RECEIVED

SEP 2 2010

DEP Office of Intergov't Programs

To: Florida State Clearinghouse

EO. 12372/NEPA Federal Consistency

AGENCY CONTACT AND COORDINATOR (SCH)
3900 COMMONWEALTH BOULEVARD MS-47
TALLAHASSEE, FLORIDA 32399-3000
TELEPHONE: (850) 245-2161
FAX: (850) 245-2190

- | | |
|--|---|
| <input checked="" type="checkbox"/> No Comment | <input checked="" type="checkbox"/> No Comment/Consistent |
| <input type="checkbox"/> Comment Attached | <input type="checkbox"/> Consistent/Comments Attached |
| <input type="checkbox"/> Not Applicable | <input type="checkbox"/> Inconsistent/Comments Attached |
| | <input type="checkbox"/> Not Applicable |

From:

Division of Historical Resources
Bureau of Historic Preservation

Division/Bureau:

Reviewer: S. Edwards

Laura A. Kammerer, Deputy

Date: 9-8-2010

9.9.2010

2010 AUG 24 A 9 32
RECEIVED
BUREAU OF
HISTORIC PRESERVATION

AIR FORCE RESPONSES TO COMMENTS ON THE DRAFT REA

Reviewer	Comment	Response
Florida Department of Environmental Protection's Northwest District Office, Pensacola	The Florida Department of Environmental Protection's (DEP) Northwest District Office in Pensacola notes that, based upon the scope of this proposal, the applicant will likely be required to apply for and obtain an Environmental Resource Permit under Chapter 62-346, <i>Florida Administrative code (F.A.C.)</i> , for the proposed activities. If an application is received after November 1, 2010, the Rule 62-346, <i>F.A.C.</i> , authorization will cover the requirements for both wetlands effects and stormwater management. Depending on the scope and size of the actual impacts, the applicant will need to apply to either the DEP or the Northwest Florida Water Management District (NFWFMD). The applicant is advised to contact the DEP or the NFWFMD prior to submitting an application to discuss the specific scope of the proposed project.	Thank you for your comment. Eglin AFB will coordinate with FDEP and/or NFWFMD regarding applicable permitting requirements.
West Florida Regional Planning Council	The West Florida Regional Planning Council (WFRPC) recommends that the proposed activities avoid impacts to surface waters, streams, creeks, steepheads, tributaries and potential groundwater recharge areas. Direct, secondary and cumulative impacts to areas known as habitat for federal and state-listed species should also be avoided and wildlife surveys (i.e., gopher tortoise habitat, indigo snakes, red-cockaded woodpeckers, reticulated flatwoods salamanders, Florida black bears, bog frogs, etc.) conducted prior to the initiation of activities. Please refer to the enclosed WFRPC memorandum for additional information.	Thank you for your comment. The recommendations provided have been reviewed and noted.
West Florida Regional Planning Council	Based on the information provided, the Council would like to make the following recommendations. Please note that the recommendations below are based on the Strategic Regional Policy Plan, established under Chapter 93-206, Laws of Florida. <u>Responses to these recommendations are not required.</u> [see original letter for recommendations]	Thank you for your comment. The recommendations provided have been reviewed and noted.
Florida Department of Environmental Protection	Based on the information contained in the Draft Range EA and the enclosed state agency comments, the state has determined that, at this stage, the proposed activities are consistent with the Florida Coastal Management Program (FCMP). To ensure the projects' continued consistency with the FCMP, the concerns identified by our reviewing agencies must be addressed prior to project implementation. The state's continued concurrence will be based on the activities' compliance with FCMP authorities, including federal and state monitoring of the activities to ensure their continued conformance, and the adequate resolution of issues identified during this and subsequent reviews. The state's final concurrence of the projects' consistency with the FCMP will be determined during the environmental permitting process, if applicable.	Thank you for your comment, comment noted.

This page is intentionally blank.